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ABSTRACT

Presented is the master plan for environmental education developed by the state of Michigan. The plan provides the framework, guidelines, and processes for coordinating and evaluating all environmental communication, education, and information activities in Michigan. It is both comprehensive and long-range, covering all geographic areas and social segments of Michigan. Included are agriculture, business and industry, citizen organizations, elementary and secondary schools, government, higher education, individual citizens, labor, mass communication, professional and trade associations, religious organizations, and youth organizations. The focus is on people and their relationship to their own community, whether urban, suburban, or rural. The plan is presented in six chapters: Overview, Development of the State Plan, The Setting, Statewide Goals and Priorities, Recommendations and Strategies, and Distribution and Evaluation. Also included are a letter of transmittal, a listing of the members of the governor's task force, the task force staff, task force consultants, a foreword, and a glossary. (PEB)

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MICHIGAN'S ENVIRONMENTAL FUTURE

A Master Plan for Environmental Education

SE 016 817

Submitted to:
WILLIAM G. MILLIKEN
Governor, State of Michigan
By:
GOVERNOR'S ENVIRONMENTAL EDUCATION
TASK FORCE

FIRST EDITION
1973

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He who plants trees loves others besides himself.

ANONYMOUS

The project presented or reported herein was performed pursuant to a Grant from the U.S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

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STATE OF MICHIGAN
OFFICE OF THE GOVERNOR
LANSING

WILLIAM G. MILLIKEN
GOVERNOR

GOVERNOR'S ENVIRONMENTAL
EDUCATION TASK FORCE

January 15, 1973

The Honorable William G. Milliken
Governor of Michigan
State Capitol
Lansing, Michigan

Dear Governor Milliken:

Your Task Force on Environmental Education is pleased to transmit to you Michigan's *Environmental Future: A Master Plan for Environmental Education*. The recommended plan was prepared with the assistance of a planning grant from the U.S. Office of Education, Department of Health, Education, and Welfare.

This Plan provides the framework, guidelines, and processes for coordinating and evaluating all environmental communication, education, and information activities in Michigan.

The Plan is comprehensive and long-range. It covers all geographic areas and social segments of Michigan, including agriculture, business and industry, citizen organizations, elementary and secondary schools, government, higher education, individual citizens, labor, mass communications, professional and trade associations, religious organizations, and youth organizations. No citizen or citizen group within the state has been omitted.

It is long-range in that it aims at organizing people to help themselves to become environmentally aware and knowledgeable. The focus of the plan is on the educational and informational needs of people. It is our conviction that only through an environmentally literate citizenry can a healthy Michigan environment be attained and maintained.

We hope you will find the recommendations worthy of your support and implementation.

Sincerely,

William B. Stapp

William B. Stapp
Chairman

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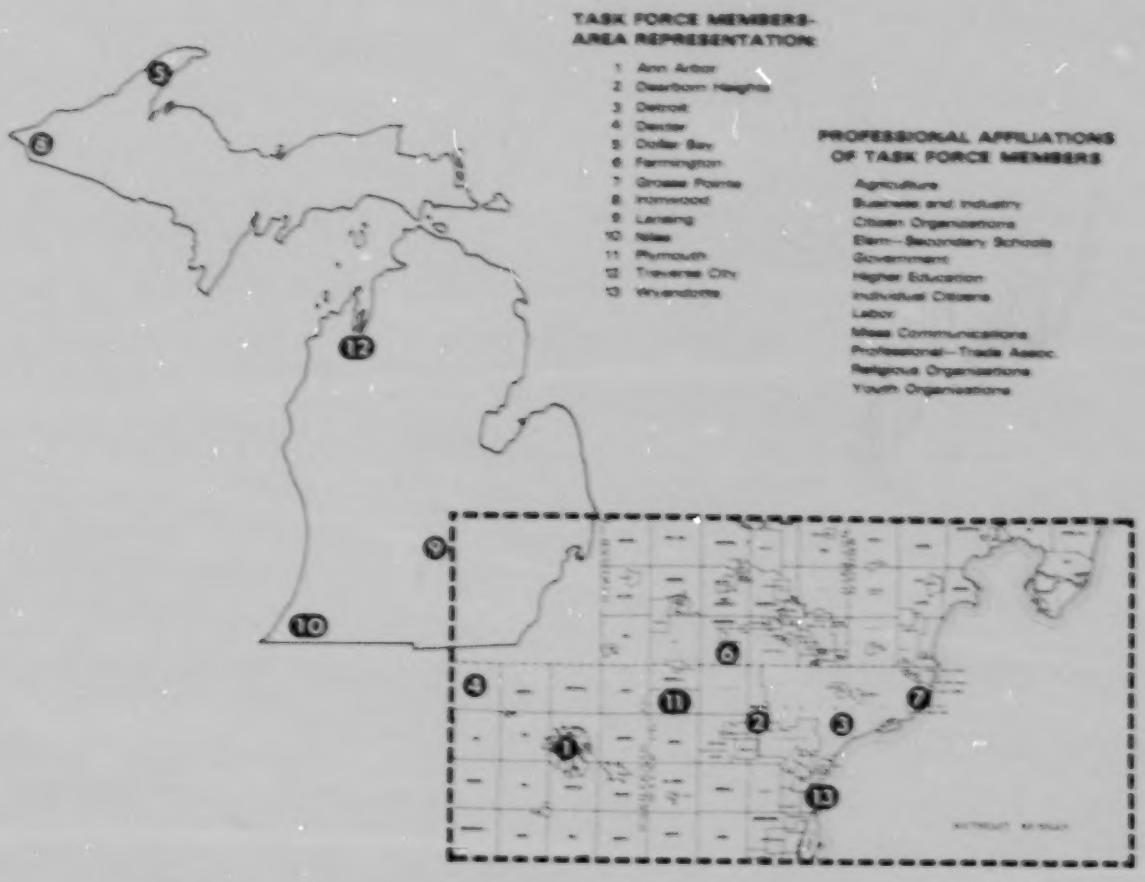
Yet such *public* knowledge is essential to the solution of every environmental problem. For these depend not only on scientific data, but ultimately on a public judgment which balances the benefits to be gained from a particular technology against the associated environmental hazards.

DR. BARRY COMMONER
The Closing Circle, 1971



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Basic to the solution of our environmental problems is our understanding of environmental relationships. We can help create this understanding by establishing a program of environmental education . . .

GOVERNOR WILLIAM G. MILLIKEN
"Special Message to the Legislature on the Environment," February 4, 1971

FOREWORD

A statewide environmental education plan defines the framework, provides guidelines, and describes the processes for coordinating and evaluating all environmental communication, education, and information activities throughout the state.[1] The formal structures and processes of school systems as well as non-formal education are included. No environmental education opportunity can be ignored. No segment of the population can be excluded.

The focus is on people and their relationship to their own community, whether urban, suburban, or rural. However, some emphasis should be given to the environmental concerns of those citizens who are most affected by environmental problems and least organized to correct them.

Those at home, in school, in youth groups, in business, members of labor and industry, mass media, the professionals—regardless of age, sex, religion, race or socio-economic group—must have an equal opportunity and the responsibility to study, understand and act upon the common environmental education goals for the State of Michigan.

The Task Force extends its appreciation to Governor Milliken for giving it the opportunity to help meet the State's environmental education needs, to the thousands of citizens who influenced the Plan, and to the professional consultants and citizens who rigorously reviewed working drafts.

[1]For definitions of terms used throughout, see the Glossary at the end of this report.

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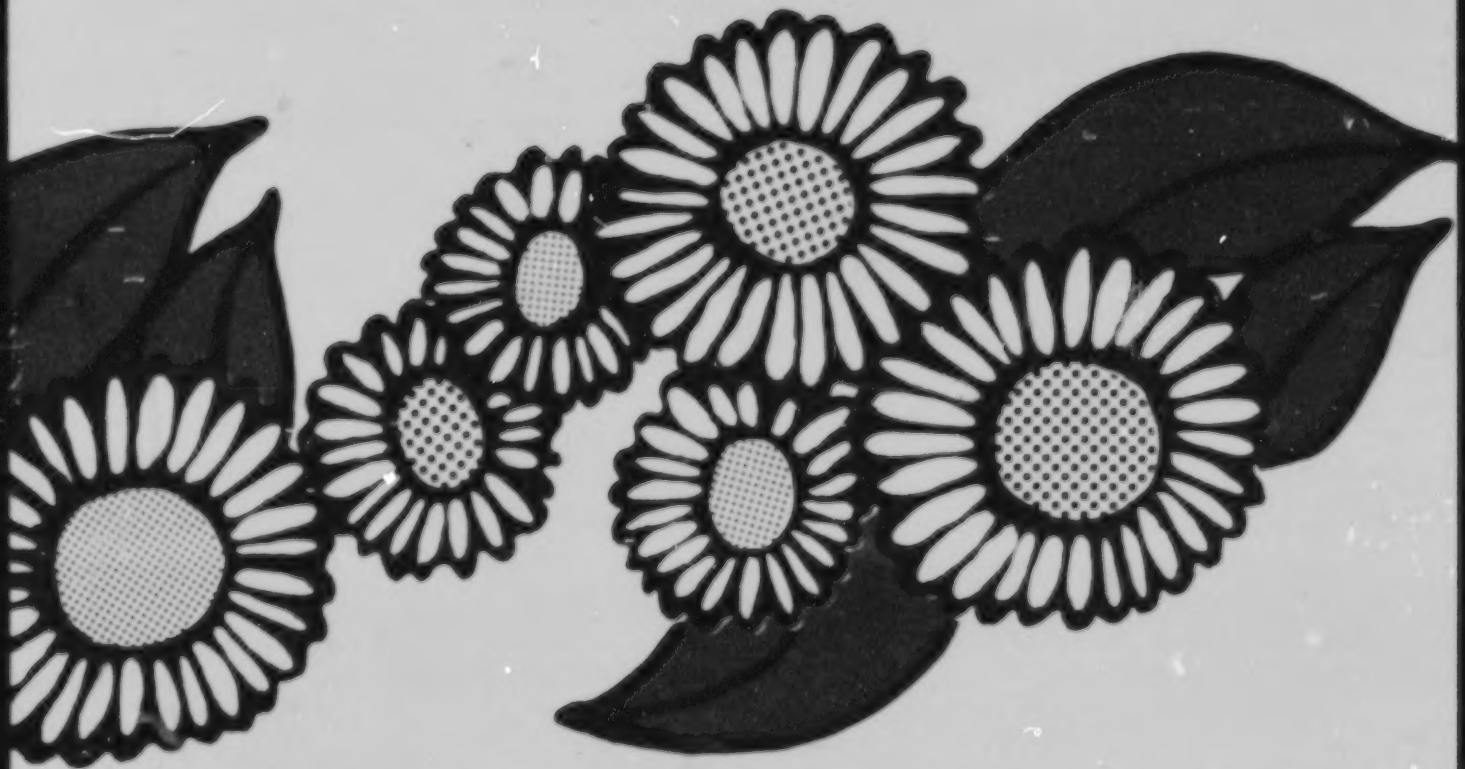


OVERVIEW

No one can escape environmental education. Watching television, for example, you see commercials and programs suggesting what and how much to consume. School children and college students also learn about the environment by studying pollution, over-population and other problems. They learn through outdoor experiences, and by observing what other people do. Young people often follow examples set by teachers, parents, and community leaders.

Everyone learns about the environment. But exactly what are people learning? What environmental knowledge do they need? Where can they get it? How can they organize themselves to use this knowledge to help solve community problems?

Governor Milliken appointed some knowledgeable people to help write a plan to try to answer these questions, and others. The Plan has six major characteristics.

1 **The Plan looks at all groups and attempts to coordinate their environmental education and information programs.** The groups having major opportunities and responsibilities in environmental communication, education, and information programs include:

- Agriculture
- Business and Industry
- Citizen Organizations
- Elementary and Secondary Schools
- Government
- Higher Education
- Individual Citizens
- Labor
- Mass Communications
- Professional and Trade Associations
- Religious Organizations
- Youth Organizations

The Plan lists separate recommendations for each of these groups, and lists some recommendations for all groups.

2 **The Plan is long-range.** It does little good to solve problems if they return next year. Our past failures to make long-range plans are characterized by a cartoon of a man painting himself into a corner, sawing off a limb he is sitting on, or running out of space on a sign he is painting.

The Plan deals not only with the here and now, but also with preparing people to solve yet unknown problems. It is better to learn *how* to solve a full range of problems than to find the solution to just one. Give a man a fish and he will eat for one day. Teach him how to fish and he will eat for a lifetime. Teach him how to manage a fish's environment and his children and grandchildren will eat too.

The Plan expresses an ideal. It presents what should be done in order to organize the state to achieve certain goals. Reality, however, may require some compromise between the ideal and the currently possible.

3 **The plan has a "grass roots" foundation.** A series of small-group discussions at public meetings gathered ideas from all regions of Michigan before the first draft was written. These ideas form the Plan's core. They reflect what citizens want. Unlike many such documents, the recommendations originated from the people to be served by the Plan, the people who have to carry them out.

All recommendations are specific and measurable. They are not stated vaguely. Some recommendations can be implemented immediately, but others require additional information, time, and money. Recommendations are like a string of buoys strung along in a pattern through time; in this case, they mark the channel to environmental education goals. Although some gaps between buoys can be filled only through more research and experience, the direction of the channel is nevertheless clear. Planning itself, after all, is a learning process.

4 **The Plan has a built-in flexibility and sensitivity to changing needs.** The Plan calls for on-going citizen evaluation through a Citizens Advisory Board, and through statewide public meetings. Every five years, after new research has been conducted, a revised edition of the Plan should be issued.

5 **The Plan suggests priorities for distributing scarce environmental education funds.** The priorities are based on the environmental educational needs of people rather than on physical regions of the state. The people who are currently the least organized to solve environmental problems, and who suffer the most from environmental problems, receive

the highest priority. No program possibility, however, is excluded.

The Plan recommends that the Governor establish in his office a State Environmental Education Council and a Citizens Advisory Board to centralize and coordinate all statewide environmental communication, education, and information programs. This planning and coordination would encompass all groups listed in the Plan and would specifically coordinate programs with the State Department of Education.

Although highly significant, elementary and secondary school programs are but a part of the comprehensive state Plan. Thus, the State Environmental Education Council would be concerned with environmental education in the broadest sense, as well as formal schooling. The Council would coordinate environmental education and information programs in cooperation with the State Department of Education, and programs outside the current activities of the Department.

In summary, this document spells out the underlying values upon which the planning activities were based and signals current problems and efforts (Chapter III). The report also tells how the Plan was developed (Chapter II) and details goals and priorities (Chapter IV).

For each major component of Michigan, recommendations are listed, constraints identified, and strategies suggested (Chapter V). Guidelines on how to distribute and evaluate the Plan are provided (Chapter VI). A complete Glossary, which defines general terms, is presented at the end of the report.

A total of 102 specific recommendations are listed. Of these recommendations, the State has the authority to implement only a few. **Most recommendations are intended to be implemented voluntarily and cooperatively by private and public groups, organizations, or individuals.**

WHAT CAN YOU DO TO HELP?

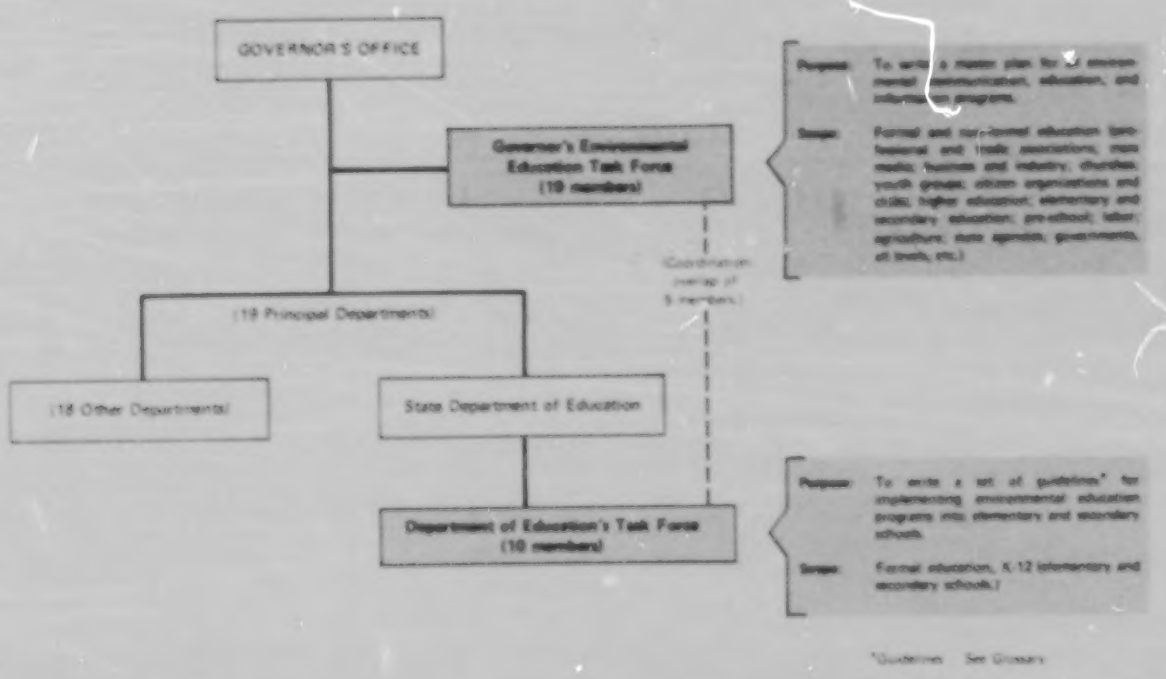
Individuals or groups should (1) read through the entire plan, (2) identify the recommendations pertaining to them, (3) outline their own strategy to help implement appropriate portions, and then (4) write the Governor's Office, Capitol Building, Lansing 48903 to find out what they can do to work with others to help implement the Plan. How we act on this Plan today determines, to a large extent, Michigan's environmental future.

Based on this complete report, "popular" summaries of the most important ideas have been prepared. Also, many recommendations are being further refined to reflect details beyond the space limitations here. Additional details may be useful to groups writing their own action plans and choosing activities which lead to the goals outlined in this report. For further specifics on any part of this report, please write to the Governor's Office, indicating which component of the Plan reflects your interests.

A state master plan for environmental education answers four basic questions:

1. What is important to us?
2. Where are we now, and where do we want to go?
3. How shall we get there?
4. How shall we know when we have arrived at our destinations, at our goals?

COMPARISON BETWEEN GOVERNOR'S "MASTER PLAN" AND DEPARTMENT OF EDUCATION'S "GUIDELINES"


GOVERNOR'S OFFICE
Governor's Environmental Education Task Force (19 members)
(19 Principal Departments)
(18 Other Departmental)
State Department of Education
Department of Education's Task Force (10 members)
Purpose: To write a master plan for all environmental communication, education, and information programs.
Scope: Formal and non-formal education (professional and trade associations; mass media; business and industry; churches; youth groups; citizen organizations and clubs; higher education; elementary and secondary education; pre-school; labor; agriculture; state agencies; governments, all levels; etc.)
Purpose: To write a set of guidelines* for implementing environmental education programs into elementary and secondary schools.
Scope: Formal education, K-12 (elementary and secondary schools.)

*Guidelines - See Glossary

DEVELOPMENT OF THE STATE PLAN

What are the consequences of taking the quality of our environment for granted? How clean must our waters be? How clear do we want our air? What kind of transportation systems do we need? How many people can our limited natural resources support? How do we provide recreational choices? How much of our prime farmland do we want changed to non-agricultural uses? How do we want the cost of pollution clean-up distributed?

The ability of people to identify the options and deal with these and other questions right now is vital.

The message to follow deals with the introduction of a choice, whether to try to live in harmony with nature's laws or to ignore them. This document assumes that man's behavior need not lead to environmental degradation. On the contrary, patterns of behavior are learned through custom and example and can therefore be changed.

This report suggests a path of systematic and planned change. The decision to take such a path rightfully belongs to each citizen of Michigan.

Planning for Change in Michigan

The State of Michigan's "Program Policy Guidelines" recognize that "an essential component of responsive decision-making is a planning capability. Planning must focus its energy on describing the nature of the society we want to build, identifying the complex problems that must be resolved in order to get there, and searching for alternative means for achieving societal goals. In short, we must begin to look systematically into the future or we will forever grope with the crises of the moment."[2]

The goals of planned change for environmental education are to make all citizens knowledgeable about their surroundings and to help them use this environmental knowledge effectively to make their community, state, and world a better place to live.

Moreover, this educational plan for change motivates each citizen to protect and enhance environmental quality through his own actions. Everyone who inhabits or will inhabit the earth will be affected by the changes produced by environmental education.

While science has provided much new information, the average citizen often does not understand or appreciate its significance. Our challenge is to help our rapidly growing population understand the implications of man's interactions with his surroundings.

The rapidly growing and changing population of Michigan, and associated changes in its en-

[2]William G. Milliken, "Program Policy Guidelines: Fiscal 1973-74." Lansing, Michigan: Office of the Governor, State of Michigan, April 12, 1972), p. 2. (Mimeographed.)

vironment, have made environmental communication, education, and information programs even more essential. The long-range goal is to build and maintain a healthy environment.

The primary purpose of the Plan is to provide long-range direction and coordination for the many independent approaches to environmental education now being taken in Michigan, and to encourage and guide new and innovative environmental education programs. The Plan is also needed to take advantage of available federal and state funds. Future requests for money from the federal Environmental Education Act of 1970 (Public Law 91-516), for example, should be consistent with the official State Master Plan for Environmental Education.

How the State Plan Was Developed

In mid-1971, various individuals from citizen and government groups recommended to Governor Milliken that a state master plan for environmental education be developed, and suggested why such a plan was needed so urgently.

In response, the Governor appointed a broad-based Task Force to write a comprehensive, long-range plan. The Task Force outlined two choices for writing the plan. They could write the document themselves and then sponsor hearings for public reaction. Or, they could sponsor a series of meetings to gain ideas from citizens first, and then write a draft. The second strategy was selected because it was felt that the first draft should emerge directly from citizen concerns.

To obtain the necessary funds to write a comprehensive long-range plan that most nearly reflected the needs of Michigan (and to employ a staff), the Task Force prepared a proposal for federal funding. The Task Force received a grant which began in June 1972.

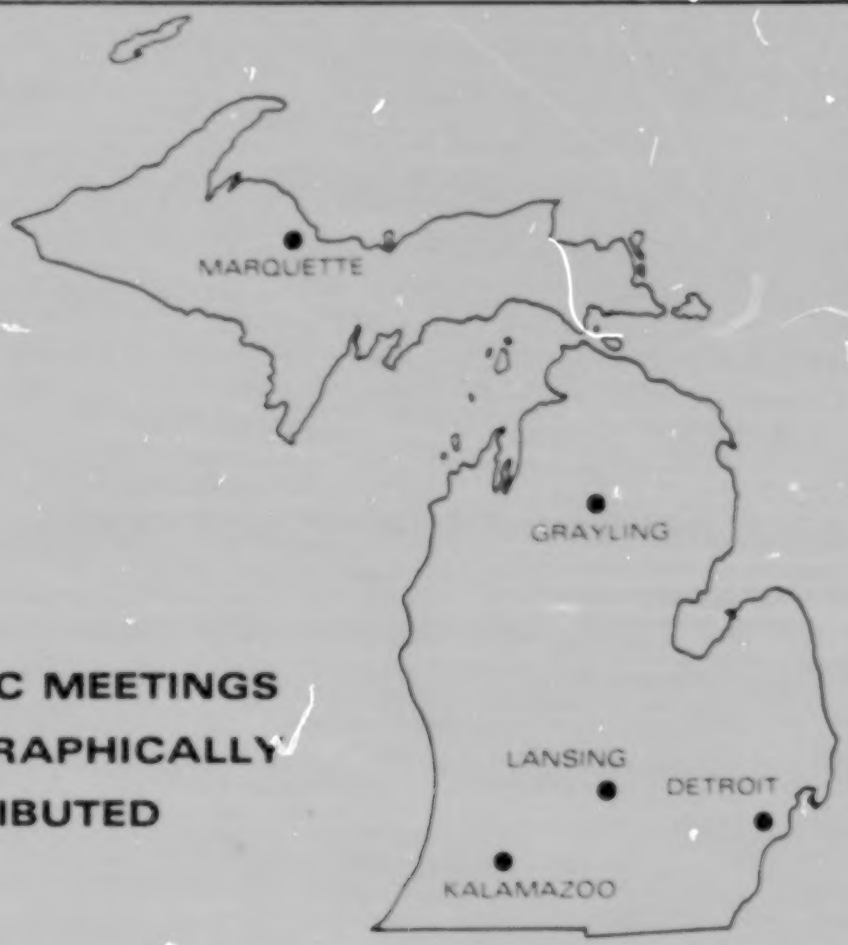
Before the grant was received and a staff employed, however, the Task Force began to assess the state's current efforts in environmental education, and outlined a tentative list of environmental education goals. They mailed this list, along with a questionnaire to assess current programs and needs, to 600 citizens and organizations across the state. With the results of the questionnaire, a more comprehensive list of environmental education goals was drafted.

During June, 1972, the first month of federal funding, four regional meetings were held. Open to the public and widely publicized, the meetings were all-day sessions, held in Marquette (upper peninsula), Kalamazoo (southwestern Michigan), Detroit (southeastern Michigan), and Grayling (central Michigan).

The meetings were designed to give individuals and groups maximum opportunity to be heard.

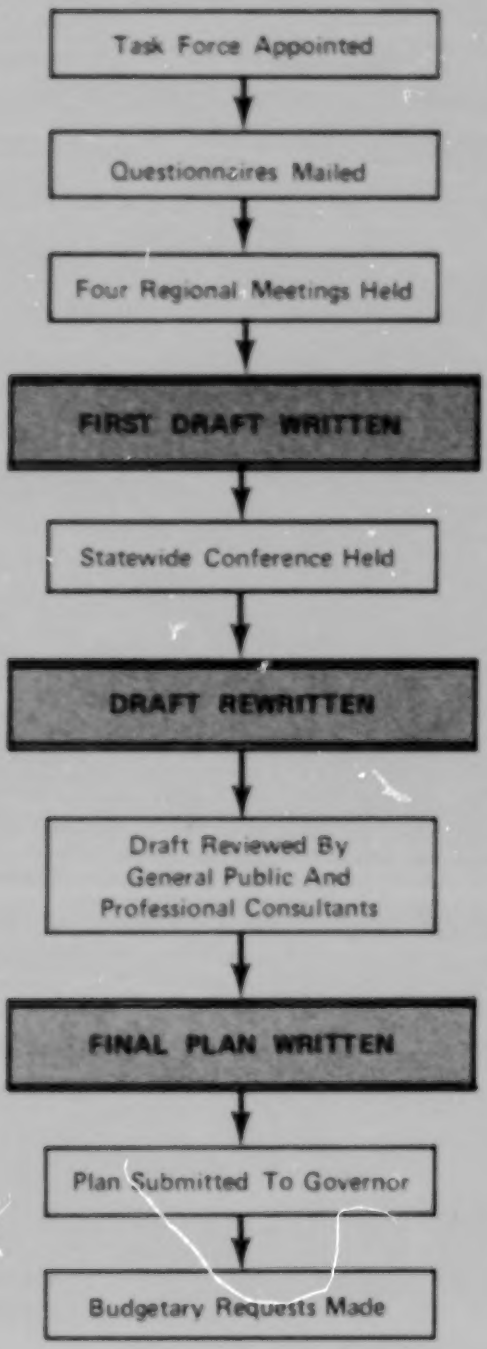
The meetings centered around small group discussions about tentative environmental education goals and the needs and directions of the state. Each small group submitted a written report, and all discussions were taped for later review. Written summaries of recommendations from one regional meeting were brought to the next, so citizens could build on the input of earlier sessions. During this time, additional input was received by mail, systematic research was conducted, and criteria for evaluating the recommendations were written.

All contributions from the four meetings were pulled together into the first draft of the Plan. This was then mailed to all participants of the regional discussions and to others who had corresponded with the Task Force. These citizens were further encouraged to attend a final statewide conference which was held in Lansing in July, 1972. The statewide conference, again widely publicized, gave the Task Force another opportunity to meet with citizens on a small group basis.



PUBLIC MEETINGS GEOGRAPHICALLY DISTRIBUTED

Steps Used To Develop The Plan



As a result of this conference, and during the following months, many drafts were rewritten in an attempt to make the Plan fit the needs of the state precisely. Special meetings were held by many state groups to refine the sections of the Plan dealing with them.

Before submitting the Plan to the Governor, however, the Task Force decided to present the final draft for public review. Copies were sent to libraries throughout the state. Every citizen or group having previous contact with the Task Force, or having participated in related activities in the state, was sent a personal notice that a complete draft was ready for review.

At the same time, the Task Force identified over 150 professional consultants and reviewers representing many aspects of education and planning, and mailed each of them a copy along with a request for comments.

As a result of this planning process and research, this consensus report has been produced.

Our schools cannot of and by themselves do the job that must be done. In fact, most of the crucial problems confronting not only our society but all the societies of the world, can only be resolved by a coordinated and unified massive, frontal attack on the part of every segment of our society.

DR. JOHN W. PORTER
Michigan Superintendent of Public Instruction
August 15, 1971

Plans are nothing. Planning is everything.
DWIGHT D. EISENHOWER

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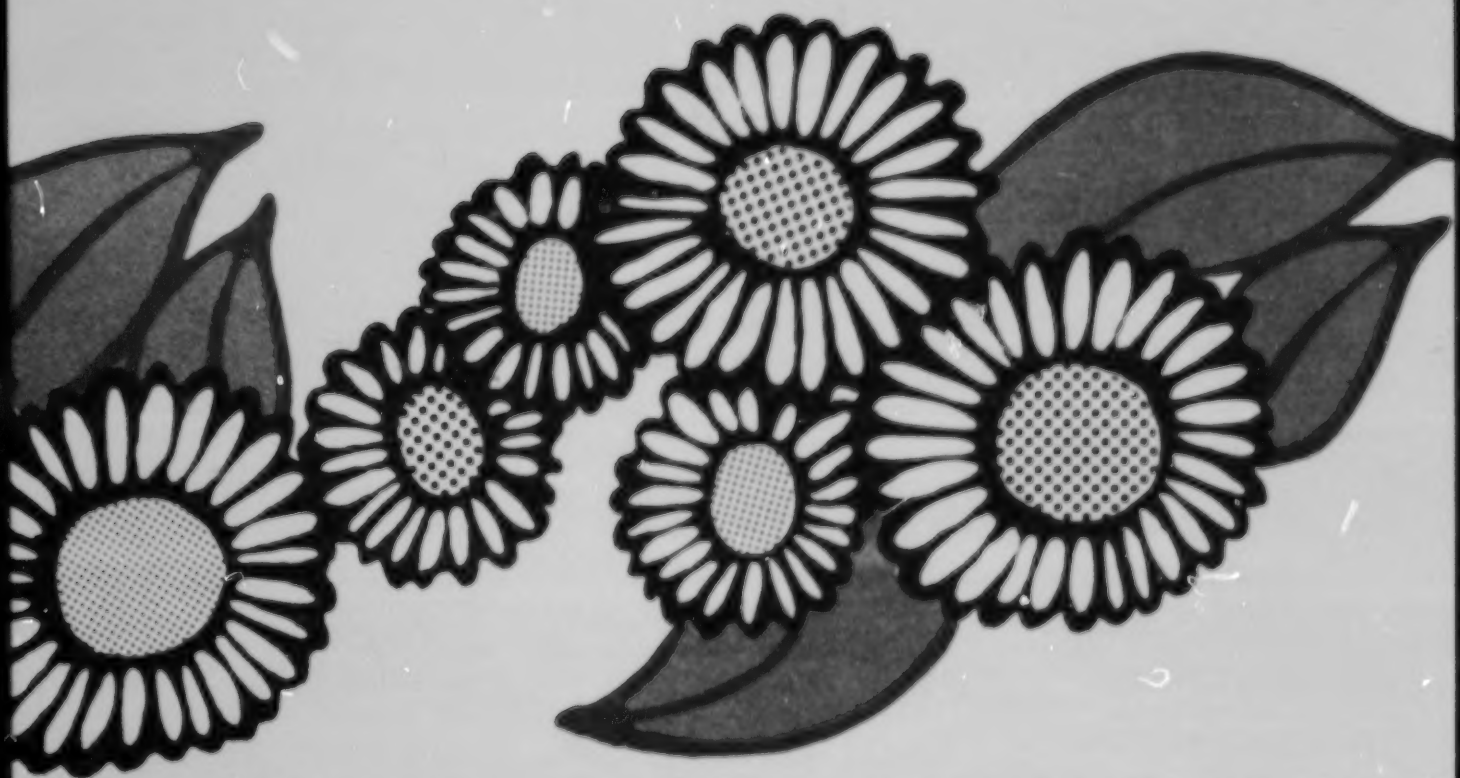


THE SETTING

What We Believe

Underlying any set of goals is a set of values. These values result from beliefs and attitudes we hold about ourselves, others, and our surroundings. Before stating environmental education goals, it is helpful to outline a few central values and problems concerning the interaction among man, his culture, and his surroundings.

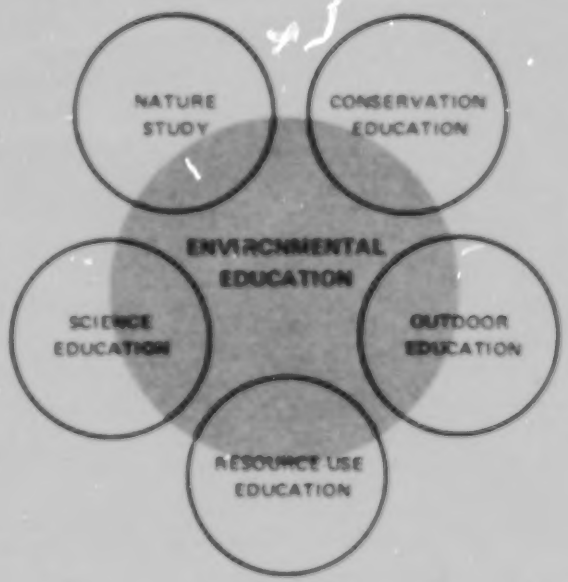
What is environmental education? **Environmental education is the basic process leading toward the development of a citizenry that is aware of and concerned about the environment and its associated problems, and that has the knowledge, skill, motivation, and commitment to work toward solutions to current and projected problems.**

The process is not confined to "formal" educational systems such as elementary and secondary schools, but also **includes "non-formal" educational media** such as radio, television, the press, industrial bulletins, professional journals, newsletters, advertising, conversation, and personal example.

Environmental education emphasizes **problem-solving techniques aimed at real problems in the local community** as they are felt today or are anticipated for the future.

Since environmental education is a process, it involves becoming informed and learning how to be effective in solving and preventing the full range of environmental problems. Environmental education is **interdisciplinary,** drawing its content from all fields — the humanities, the social sciences, economics, psychology, engineering, and the biological and physical sciences.

Though related to them in important ways, environmental education should not be considered synonymous with such terms as "conservation education," "outdoor education," "resource-use education," "science education," or "nature study." These fields share common elements but each differs in emphasis and history. Each is justified in itself as making important contributions to society and to environmental education.



Population education is also a necessary part of environmental education. Everyone must grasp how population changes and trends influence environmental balance and human health. An environmentally educated person, among other things, understands the impact of population change on a life-support system. The individual then knows how to choose rationally among alternative courses of action to affect population trends, which in turn affect the total environment.

The term "population education" must not be confused with "sex education." Sex education is the study of human sexuality. Population education has a different focus. It emphasizes objective data and stresses how population is affecting all areas of the world in terms of social, cultural, and environmental factors.

If it is educationally desirable to study animal populations, say, within a biology class, then it is equally sound to study human populations in science, social studies, and humanities classes. And it is educationally sound to watch television programs on human population trends, implications, etc. Thus, population education scientifically views population as an objective biological and cultural event.

Many human population problems are inherently cultural problems. Beliefs, attitudes, values, and behavior patterns all interrelate to affect population trends. Population education, therefore, concerns not only the dynamics of large numbers of people, but also how the individual acts in a democracy to influence social problems related to population.

Since certain population trends are more desirable than others, the population education part of environmental education must go beyond the mere handing out of information on trends. Population education entails total community involvement in making decisions about population characteristics. Population education should be an integral part of all environmental communication, education, and information programs in Michigan.

Values clarification is also an essential part of environmental education. Values clarification stimulates an individual to examine his behavior by clarifying for himself his purposes, beliefs, attitudes, and values. It helps to shrink or eliminate the inconsistencies in an individual's life, and encourages the development of a positive belief in oneself. Values clarification is essential in making sound environmental decisions, which often imply making choices among competing values.

Environmental education involves the recognition and clarification of the beliefs and attitudes that form environmentally sound values. Only when an individual understands all the implications of holding certain beliefs, attitudes, and values is he in a position to decide rationally whether or not to revise them.

In sum, environmental education aims at the core of man's culture—his beliefs about himself and his world. The entire cultural system (which includes all social, economic, political, educational, religious, and scientific institutions) is the lens through which man views his environment and provides the goods and services he perceives he needs.

Environmental education provides additional bases for choosing how we want to live, an essential characteristic of a democratic society.

To survive, mankind must learn: (a) **that all living things are interdependent with one another and with their surroundings,** (b) **that man acts upon and influences his environment, and in turn the environment acts upon and influences man, and** (c) **that man changes himself when he changes his environment.** Furthermore, because all organisms and environments are in constant flux, man must plan to ensure that changes are in directions healthy to himself and to future generations.

Scientists and public officials have been watching the overall health of our urban, suburban, and rural environments for many years. According to their observations, there are clear symptoms of unhealthy conditions. Based upon research, experience, and training in environmental matters, preliminary diagnoses have been made and many temporary prescriptions have been offered to curb the long-range, potentially deadly effects of damage to healthy life-support systems.

This Plan is not designed to cover up the visible surface wounds, but instead to reduce the underlying causes of problems. The environmental education programs made possible through this Plan should help each citizen **become aware** of environmental problems, **identify alternative ways** of solving the problems, **examine the consequences** of each alternative, and **make a personal decision** based on an assessment of the information gained. To do this, environmental education may require, in many instances, significant reforms of current educational practices.

Implications of the State Plan

Full implementation of the Plan will ideally lead to:

(1) support for personal, group and organizational policies designed to maintain or improve environmental and human quality;

(2) rejection of personal, group and organizational policies that are harmful to the environment; and

(3) change in the attitudes and behaviors that create environmental problems.

Problems We See

As long as man continues to hold false beliefs about the way he and his environment interact, he will continue to have conflicts. He finds himself struggling because his beliefs do not match reality. Man must respect environmental realities, and learn to harmonize his actions with them.

Man behaves according to his beliefs. Early man avoided certain places because he believed them to be occupied by demons; he did not behave according to reality, but according to what he believed. Even though ecologists have learned much about how living systems work, some behavior patterns of our culture persistently mirror an environmental belief system that is in conflict with reality. As long as our beliefs produce living styles in conflict with the maintenance of a healthy environment, we will have increasingly severe environmental problems.

The changes in growth, mobility, and distribu-

[1]Much of the data in this section were adapted from Land Use in Michigan (East Lansing, Michigan: Cooperative Extension Service, Michigan State University, January, 1969), and Kurt Gerwitz and Muhammad Siddique, "Zero Population Growth: An Analysis of its Implications for Michigan" (Lansing, Michigan: Center for Health Statistics, Michigan Department of Public Health, [1971]) (Mimeographed).

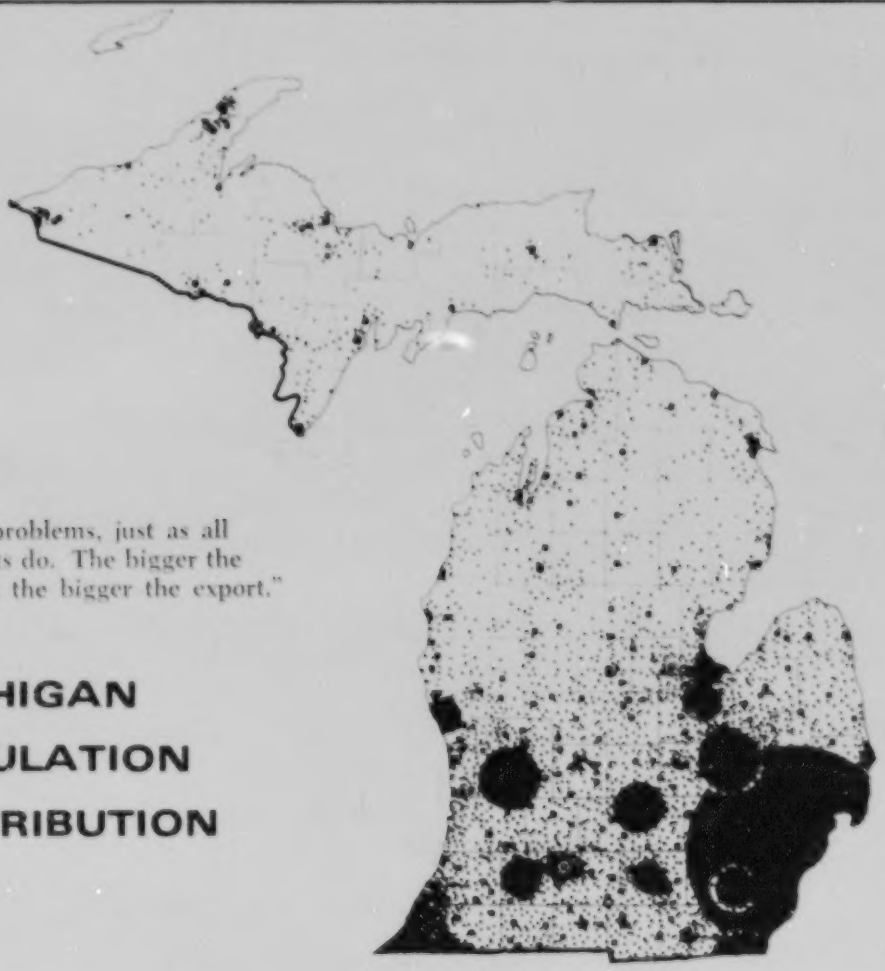
tion of Michigan's population create complex problems. Since the turn of the century, Michigan's population has grown from approximately 2½ million to nearly 9 million in 1970, and it is expected to reach 13 million by the year 2000. Even if the average number of children per family were stabilized at two, Michigan's population would continue to increase for two generations.

Since the turn of the century, Michigan has changed from a widely distributed population to the current population concentrations. By the year 2030, for example, 75 percent of Michigan's population is expected to be suburban. Many other environmental problems are obvious throughout the state; however, most of these problems appear minor compared with the environmental problems of some urban areas.

Discrepencies between beliefs about the environment and the realities of the environment in an urbanized or over-populated area are responsible for urban blight, traffic congestion, waste disposal problems, degraded living conditions, etc. Urbanized areas also place recreational and biophysical stress on nearby rural areas, such

"Cities export problems, just as all environments do. The bigger the problem, the bigger the export."

MICHIGAN POPULATION DISTRIBUTION



as removal of prime farmland from food production, excessive tax assessments, and social objections to some agricultural enterprises.

Different regions of the state are experiencing both common and unique environmental problems. Southern Michigan, for example, is characterized by expanding suburbs and industrial encroachment on open space and prime farmland around urban and suburban districts. Some inner-city areas are suffering from over-crowding, rats, noise, and other degrading conditions.

The upper peninsula is experiencing an increasing demand for recreational facilities, environmental pressures from the growing wood-using industry, some dying towns, and a general out-migration of people.

It is important to understand that problems tend to be exported from one area to another and, therefore, are the direct concern and responsibility of all segments of society.

As population growth, distribution, and consumption patterns intensify, the beliefs, attitudes, and values of a culture become increasingly important. Environmental education focuses upon these roots of our ecological crisis—our environmental perceptions, beliefs, attitudes, and values.

The root causes to our problems, moreover, are not unique to any single segment or political subdivision of Michigan. They are shared by all.

We must also couch our goals and programs to contribute not only to state protection and enhancement, but also to global improvement. Any attack on environmental degradation must be global to have long-range merit.

Environmental education . . . includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, and urban and rural planning to the total human environment.

Environmental Education Act of 1970

Environmental education is communication aimed at producing a citizenry that is knowledgeable concerning our biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.

Journal of Environmental Education, fall 1969

Environmental education is the process of recognizing and clarifying the values, attitudes, and concepts necessary to understand and appreciate the interrelatedness among man, his culture, and his biophysical environment. Environmental education, moreover, entails practice in decision-making about issues concerning environmental quality.

National Education Association Task Force on Environmental Education Report, *Today's Education*, September 1971

Assessment of Current Efforts

Many environmental education resources are already available throughout Michigan. Due credit must be given to those individuals and groups that have conducted related programs for years. The attempt here is to strengthen and build upon those efforts which show promise.

To begin to build upon current efforts and to assess those efforts, the Task Force mailed questionnaires to representatives from diverse groups throughout the state.

The questionnaires sought to sample the environmental education resources and needs in Michigan and to clarify environmental education goals and subgoals (see Chapter IV). The resources currently available and the percentage of respondents indicating their availability are as follows:

1. instructional materials: films (49%), magazines (42%), slides (39%), fact sheets (38%), technical reports (34%), and film strips (34%).
2. human resources: speakers, field trips, consultants, and meetings.
3. physical facilities: library (43%), meeting places (lecture halls, etc.) (42%), recreation (32%), plant tours (29%), and camps and conference centers (29%).

As judged by the respondents, six environmental education priorities were identified from fifteen environmental education concerns. Ranked from the highest to the lowest, they are (1) Curriculum, (2) Legislation, (3) Community Environmental Education Programs, (4) Teacher Education, (5) Materials, and (6) Communications.

Approximately 75% of the respondents checked "inadequate" *for existing environmental education programs, training programs in environmental education for teachers, citizen involvement in environmental education issues, environmental education facilities, and information dissemination on legislative action.*

WHAT IS E.E.?

1. **E.E. is NOT conservation education.**
2. **E.E. is NOT a subject—it is a process.**
3. **E.E. is multidisciplinary.**
4. **E.E. is community oriented.**
5. **E.E. is problem focused.**
6. **E.E. includes ALL components of society.**
7. **E.E. builds on the past—good work.**
8. **E.E. is teacher—student oriented.**
9. **E.E. is both formal and non-formal.**
10. **E.E. could be an educational reform.**

DR. GEORGE LOWE
U.S. Office of Environmental Education
HEW
January 4, 1972

Sec. 2. (a) The Congress of the United States finds that the deterioration of the quality of the Nation's environment and of its ecological balance poses a serious threat to the strength and vitality of the people of the Nation and is in part due to poor understanding of the Nation's environment and of the need for ecological balance; that presently there do not exist adequate resources for educating and informing citizens in these areas, and that concerted efforts in educating citizens about environmental quality and ecological balance are therefore necessary.

from Public Law 91-516, 91st Congress of the United States

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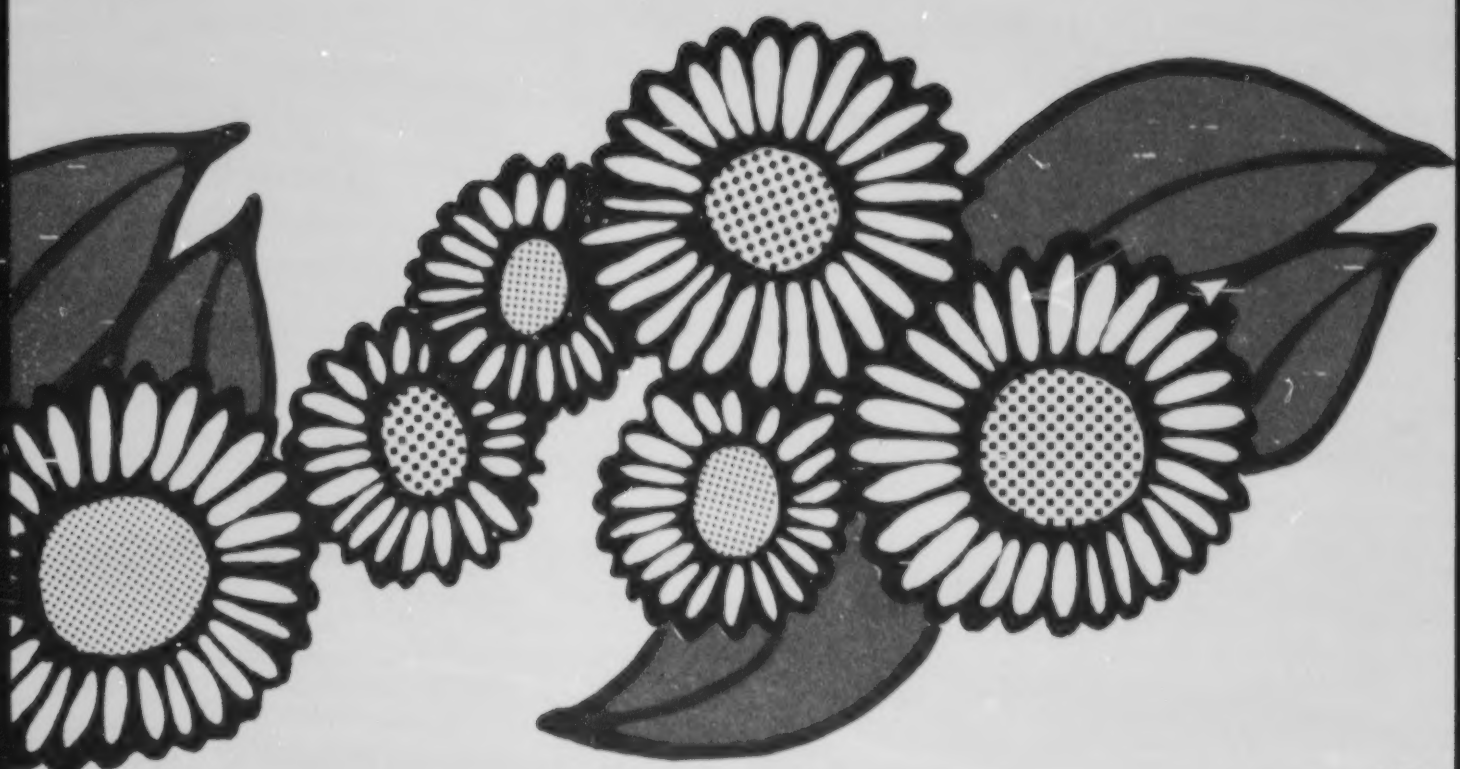

STATEWIDE GOALS AND PRIORITIES

Broad goals and subgoals are presented at the outset. Definite objectives and recommendations are presented later in this report.

In order to design programs effectively, general goals and subgoals must be refined. Without such refinement the program designer would have no basis except tradition for selecting strategies, nor would he have any valid and reliable base for checking the effectiveness of his program (see Chapter VI).

Goals and Subgoals of Environmental Education

A clear understanding of goals is essential to guide program design, implementation, and evaluation. (See the Glossary at the end of this report for an exact definition of all important terms.)

The goals of environmental education in the State of Michigan are to develop in people

(a) an **awareness, understanding,** and **concern** for the environment with its associated problems and

(b) the **knowledge, skill, motivation,** and **commitment** to work toward solutions to these current and projected problems.

To achieve the above goals, structures and processes are needed to help individuals and groups:

1. Obtain an understanding that man is an inseparable part of an environmental system and that whatever he does alters his surroundings.
2. Obtain a basic knowledge of how environmental problems can be solved, and recognize the responsibility of individuals and each segment of society to cooperate in their solution.
3. Develop thinking and action skills for the prevention and correction of environmental abuses.

Objectives for Planning

Objectives are a specific, measurable, but flexible set of ends which can be achieved as a result of the planning process. The objectives of this Plan for environmental education, however, should not be confused with the objectives of environmental education itself. Planning objectives merely guide efforts to establish forms and processes through which the objectives of environmental education can be accomplished.

The objectives of environmental education, on the other hand, would be the kinds of behaviors

that an environmentally-minded citizen should demonstrate. A specific listing of these behaviorally stated "performance objectives" is beyond the scope of this report.

Environmental education planning is but one kind of "democratic social planning" and, therefore, should not be confused with models for "physical planning" or "economic planning." Although these models have similarities, they also have significant differences.

The objectives for planning efforts, to which overall and component recommendations of this Plan contribute, are as follows:

1. To *develop* a rationale for planning efforts by specifying the purposes, functions, audiences, origins, and implications of a state environmental education plan for Michigan.
2. To *develop* a means by which citizens, individually or collectively, can measurably affect the processes and products of planning efforts.
3. To *assess* current environmental education efforts in Michigan through exploratory research.
4. To *specify* in writing a set of environmental education goals for Michigan.
5. To *organize* the state's efforts in working toward environmental education goals by:
   A. coordinating *human* resources.
   B. creating and channeling program *materials and equipment.*
   C. establishing *time-tables* for implementation of program activities.
   D. providing justification for the allotment of *space* for program activities.
   E. providing a means of obtaining *financial* assistance for programs.
   F. establishing the *structures* and channeling the *flow of information* to ensure efficient and equitable management of environmental education resources—human, materials, equipment, time, space, and financial.
6. To *make recommendations* to appropriate groups in order to determine and initiate specific actions (performance objectives) that lead to the accomplishment of environmental education goals.
7. To *identify* and *rank* environmental education priorities for requesting and allocating Michigan's current and future environmental education resources.
8. To *design* ways to evaluate the long-range effectiveness of state environmental education planning efforts.
9. To *write* a planning report and *design* strategies to ensure adoption of its content.

We are all blind until we see
that in the human plan,
Nothing is worth the making
if it does not make the man.
Why build these cities glorious,
if man unbuilded goes,
In vain we build the world
unless the builder also grows.

EDWIN MARKHAM

A short-term perspective won't protect the environment. We will have every polluter back polluting cheerfully in five years unless we build structures that will last.

DR. MARGARET MEAD
at U.S. Congress Hearings on
Environmental Education, April 8, 1970

The master plan is an "overall blueprint for community development." As such it is not a static, rigid document but a guide for both public and private action.

DR. LOUIS L. FRIEDLAND
Associate Dean, School of Liberal Arts
Wayne State University
in *Emergence and Growth of An Urban Region*, 1966

Priorities

Because of limited resources, value decisions must be made as to the kinds of programs which should have precedence. These programs should be further ranked according to relative urgency.

Because societal needs and their relative importance are in constant change, any priority ranking must be considered temporary and subject to revision at any time. A change in priorities, however, should not affect the definition or goals of environmental education, though changes in priorities do affect the placement and design of organizational efforts to achieve them.

Each program proposal for the state should be considered for private, state, federal, or international funding to the extent that it concerns high priority areas and criteria listed in this Plan. All proposals, however, should be fully reviewed by the proposed State Environmental Education Council (see Recommendation 2) and be eligible for endorsement or funding. Priority listings are not intended to exclude any worthwhile initiatives.

The following priorities are based on human (demographic) environmental education needs rather than on physical (geographic) problems, although the two are often closely related.

Priorities for Michigan

THE GOVERNOR'S TASK FORCE HAS ESTABLISHED THE FOLLOWING ORDER OF PRIORITIES TO SERVE AS GUIDELINES FOR ALLOCATING AND AUGMENTING MICHIGAN'S ENVIRONMENTAL EDUCATION RESOURCES:

Priority 1: Programs for urban populations to the extent that they:

A. *Establish educational planning efforts* and processes that can lead directly to community awareness and problem-solving.

B. *Develop human resources* that can assure on-going local problem-solving and community involvement.

C. *Involve citizens* who are most directly affected by environmental degradation and its associated problems.

D. *Involve citizens* who are least organized to correct the environmental problems they endure.

Priority 2: Programs for suburban populations to the extent that they meet the criteria (A-D) listed under Priority 1, above.

Priority 3: Programs for rural populations to the extent that they meet the criteria (A-D) listed under Priority 1, above.

Priority 4: Programs designed to establish statewide leadership training activities (including government and non-government groups) to the extent that they:

A. Are potentially *self-perpetuating*.

B. Are aimed at highly influential *decision-makers* and opinion leaders.

C. Potentially affect *large populations*.

D. Can *multiply* similar programs throughout other groups.

E. Are aimed at individuals who will have the greatest *length of service* in decision-making roles.

Priority 5: Programs designed to establish leadership training activities having less than statewide influence to the extent that they meet the criteria (A-E) listed under Priority 4, above.

A plan is a guide, not a prescription.

If people find fault with its concepts or intentions, a mechanism has been proposed in the Plan to voice these concerns, and if necessary, change it. Nothing, however, will happen unless there are dedicated individuals and organizations who will outline appropriate and effective activities to help implement the Plan. From writing letters asking legislators for support and quick consideration of the Plan's budget request, to printing materials that help citizens recognize, evaluate, and react to current environmental issues, we all can have an important part in the Plan and the future of environmental education in Michigan. It's a challenge none of us, nor any of our children, can afford to neglect or forget.

***Michigan Out-of-Doors*, March 1973**

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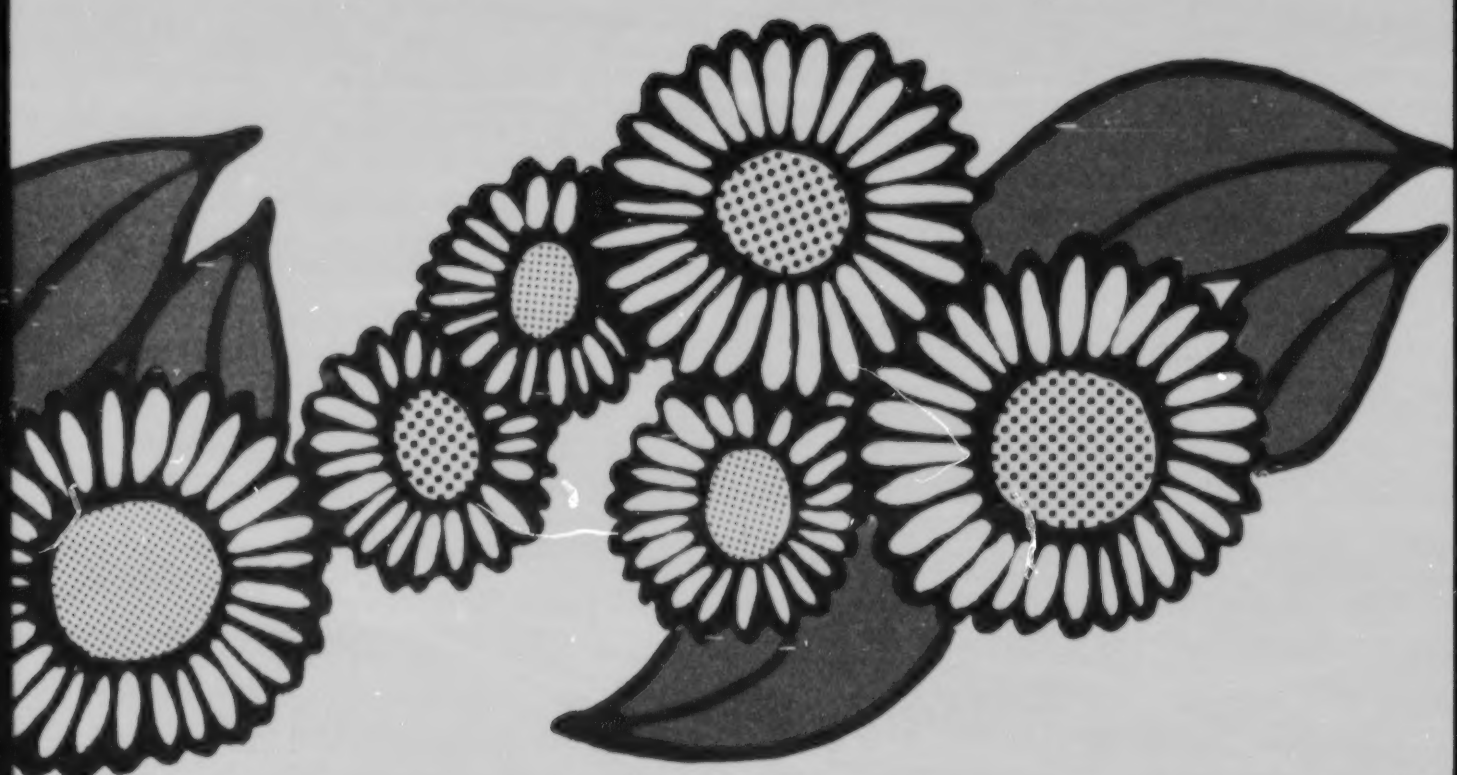

RECOMMENDATIONS AND STRATEGIES

Overall Recommendations

Based upon a set of beliefs and derived from environmental education **goals**, the following **overall recommendations** with their accompanying **constraints** and **strategies** were developed. Together, their visible and measurable achievement should lead to the attainment of environmental education goals which are vital to the welfare of all people of Michigan.

Overall recommendations apply broadly to all component groups listed later in this report. They deal with reforms aimed at organizing, financing and evaluating environmental education efforts.

A "recommendation" is an idea of **what to do to initiate action and develop the machinery to achieve the overall objectives of the state Plan.** Recommendations are specific. They imply "performance objectives" to be attained and are concrete and measurable — that is, one can easily tell whether or not a recommendation has been implemented. They can be evaluated.

Immediately following each recommendation is the name of the **target group** or groups to

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Whether Michigan responds to the critical educational needs of our time depends in part upon the leadership that you, as legislators, and I as Governor, provide.
But it also depends even more heavily on the support that the people generally provide.

GOVERNOR WILLIAM G. MILLIKEN
"Special Message to the Legislature on Education," April 3, 1969

If this is the vision of the future—if this is the direction in which we want to move—the next thing we must consider is how we propose to get there, and what obstacles lie in our path. For such a vision is never self-fulfilling. We cannot stand idly by and expect our dreams to come true under their own power.
The future is not a gift; it is an achievement. Every generation helps make its own future. This is the essential challenge of the present.

ROBERT F. KENNEDY

which that recommendation should be sent for action. The accompanying chart (see next page) arranges all recommendations by target groups, so that all the recommendations affecting a particular target group can be identified easily by number if so desired. The strategies outlined in this Plan ensure that each recommendation arrives at the appropriate target groups.

The recommendations listed in this and the following sections should be interpreted only in the context of the total Plan.

THE GOVERNOR'S TASK FORCE RECOMMENDS TO THE STATE OF MICHIGAN:

1. THAT the State of Michigan officially encourage the Congress of the United States to extend the ENVIRONMENTAL EDUCATION ACT of 1970 (Public Law 91-516) and to release appropriated funds so that the citizens of Michigan can further initiate environmental education programs. (TARGET: Governor's Office)

2. THAT the Governor of Michigan appoint, before July 1, 1973, with the advice and consent of the Senate, a permanent seven-member ENVIRONMENTAL EDUCATION COUNCIL, which should be comprised of the following members: (TARGET: Governor's Office and Legislature)

   (a) State Superintendent of Public Instruction

   (b) Six citizens, serving at the pleasure of the Governor, four of whom should be employed outside government (all levels), and selected according to the following criteria:

   (1) demonstrated interest and competence in environmental education leadership.

   (2) demonstrated personal commitment to the content, principles, and spirit of this Plan.

   (3) demonstrated sensitivity to, and interest in, all component groups listed in this Plan and all regions of the State.

   (4) no more than one member to represent any single agency, institution, or organization.

The citizen members of the Council should serve for three-year terms; provided, that of those first appointed, one-third shall be appointed for one year, one-third for two years, and one-third for three years. Thereafter, citizen members should be appointed for three-year terms.

The Council should be housed in the Office of the Governor for a period of two years, after such time its administrative location should be reevaluated.

The Council should in no way subtract from or conflict with the powers of the State Board of Education, but should serve in an advisory capacity to the State Board. This Council should cooperate fully with the State Board of Education.

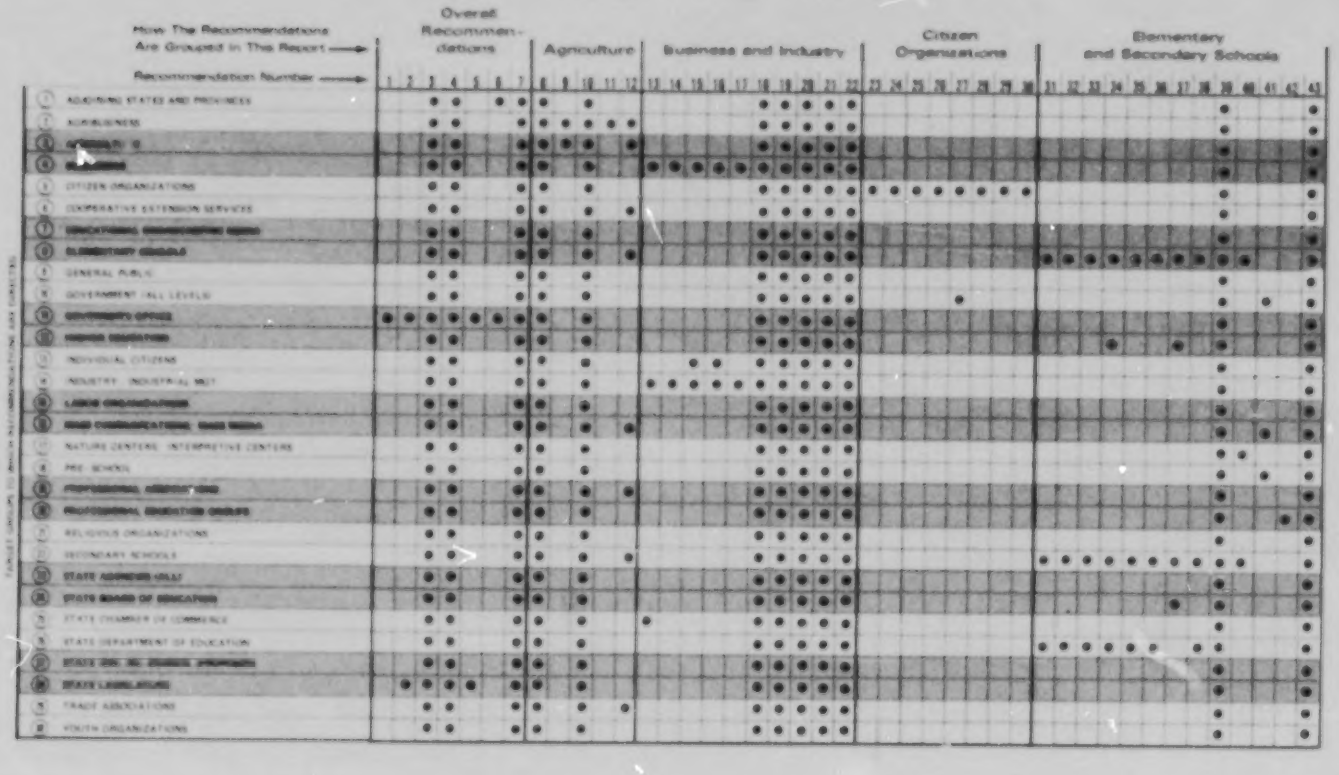
"Cheshire Puss," she began, rather timidly . . .
"Would you tell me, please, which way I ought to go from here?"
"That depends a good deal on where you want to get to," said the cat.
"I don't much care where—" said Alice.
"Then it doesn't matter which way you go," said the cat.

LEWIS CARROLL, *Alice's Adventures in Wonderland*

Science has begun to shift from the measurement of things to
the study of processes and the interactions between them;
the "proper study of mankind" has become not "man" but change.

DON FABUN, *Dimensions of Change*, 1971

"Some recommendations affect many target groups"

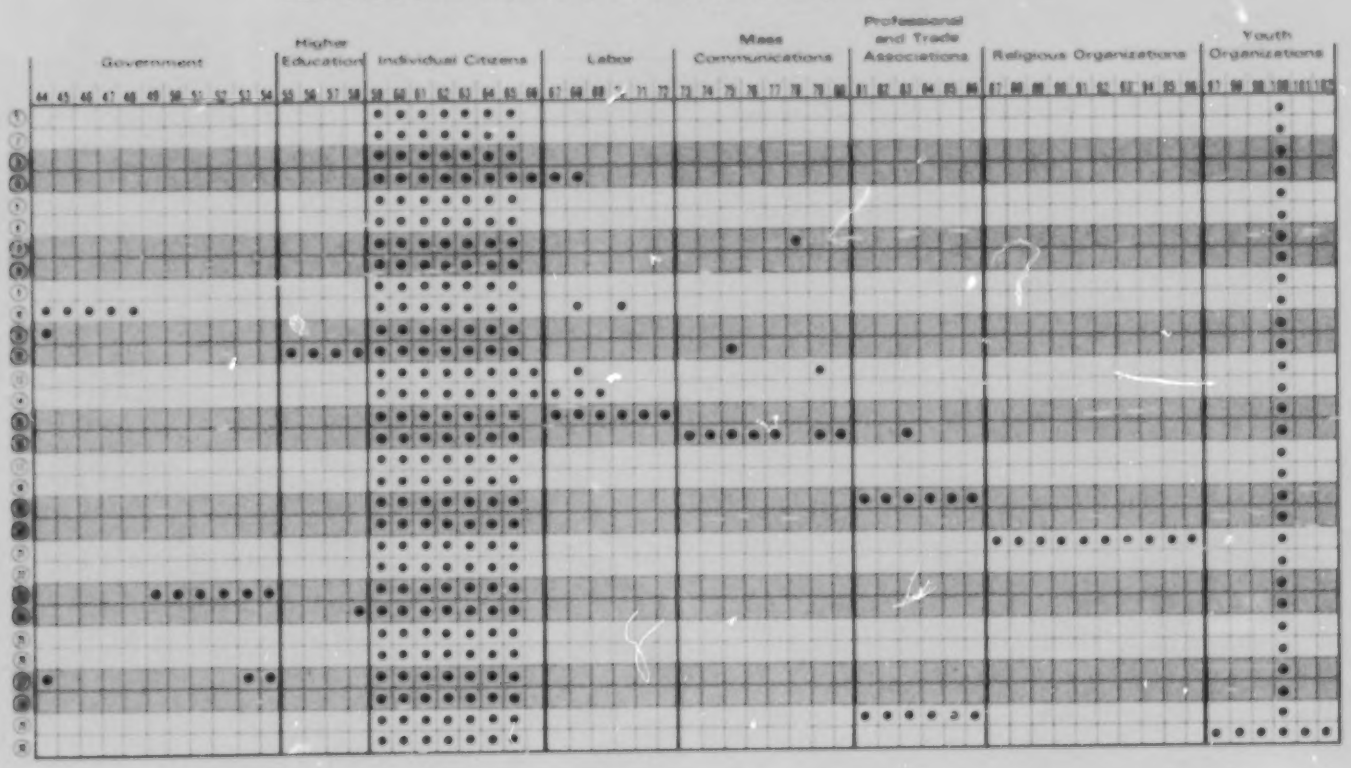


Let us suppose that our policy-making institutions are or become such that they can generate policies equal to our needs. This will often mean, equal to our children's needs; for few important policies today can become effective until ten, twenty, or even thirty years after the date when the search for them first begins.

GEOFFREY VICKERS
"Planning and Policy-Making"
Political Quarterly, July-September 1967

The year 2000 is only as far ahead of us as 1946 is behind us.

"Some recommendations affect many target groups" (Continued)



The Council should freely elect its chairperson each year. No chairperson should serve more than three one-year terms.

Each citizen-member should receive equal compensation at a per diem rate plus authorized expenses as established by the Governor.

The Council should be given the necessary funds to maintain an office in Lansing for the purposes of:

A. Employing a full-time Executive Secretary and staff to carry out the functions of the Council.

B. Providing technical assistance for environmental communication, education, and information programs.

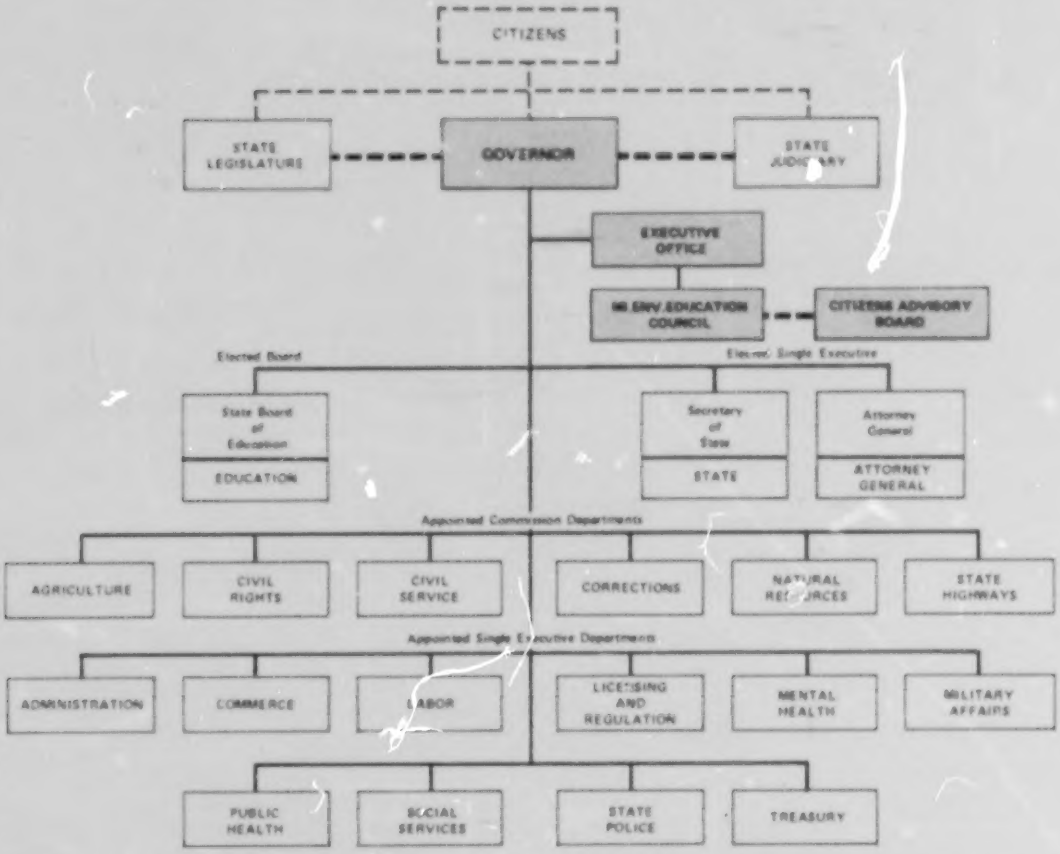
C. Expanding and distributing funds received by the Council.

D. Recommending to the Legislature changes in Michigan statutes.

E. Establishing incentives and seeking out funding possibilities from international, national, state, local, and private sources.

F. Coordinating environmental communication, education, and information

STATE ORGANIZATION FOR ENVIRONMENTAL EDUCATION



Environmental Communication, Education, and Information Programs Involve All Units of State Government

efforts among all state agencies and other appropriate groups through the governing body of each Environmental Education Region (see Recommendation 4), when established by the Governor. (Guidelines for coordination should be established by the Council.)

G. Generating and publicly reporting research data which can be used as a partial indicator (measure) of the level of environmental awareness and understanding within various populations.

H. Studying and reporting to the Governor, Legislature, and public, environmental communication, education, and information manpower needs in Michigan, together with the training and use of existing manpower.

I. Writing an annual in-depth report for the Governor to contribute to a "Governor's Social Goals and Indicators Report."

J. Gathering research data, in cooperation with the Planning Division of the Governor's Office, for use by:

(1) Social planners—systematic and comparative data which can be reviewed for changes and trends over long periods of time (see Chapter VI).

(2) Social problem analysts—data useful in solving immediate environmental education and information problems.

K. Evaluating the educational impact of all significant environmental communication, education, and information activities within the state. (Guidelines for this evaluation should be established by the Council.)

L. Developing systems to ensure that the environmental education activities of component groups are consistent with the state Plan.

M. Maintaining a permanent mailing list of key citizens and groups with interest or

The best way to combat environmental decay is to raise the consciousness of people to the real needs of our environment.

MRS. WILLIAM G. MILLIKEN
January 6, 1972

The not-surprising culmination of this outpouring of concern was the nearly unanimous passage of the Environmental Education Act on October 13, by a vote of 64 to 0 in the Senate and 289 to 28 in the House. President Nixon signed the legislation into law on October 30.

"Environmental Education That Cannot Wait"
***American Education*, May 1971**

Education programs should be encouraged through the state to assist local people in articulating their demands or needs related to land-use, and to understanding the forces and trends which influence land-use, and the options available for guiding those forces. . . . The time has come when the State of Michigan must act to protect its future.

GOVERNOR'S SPECIAL COMMISSION ON LAND-USE
"Governor's Special Commission on Land-Use Report," January 5, 1972

expertise in environmental education. (The Governor's Task Force on Environmental Education developed such a list.)

N. Reviewing program proposals for environmental communication, education, and information, and endorsing or recommending funding for programs consistent with the state Plan.

O. Assigning responsibilities to regional Environmental Education Coordinators, where they exist.

P. Cooperating with existing libraries, the Cooperative Extension Service, and the national Education Resources Information Center (ERIC), to collect materials on environmental education and to disseminate environmental education information, print and non-print program guides, and other materials.

Q. Evaluating and reporting all major statewide efforts in environmental education for their consistency with the concepts, principles, and spirit of the state Plan.

R. Reviewing and readjusting the purpose, form, and content of the state Plan when needed, and through formal public meetings every five years beginning in 1977 (see Chapter VI).

S. Establishing formal two-way communication channels between the Council and the

(1) Michigan Environmental Education Association

(2) National Association for Environmental Education

(3) Alliance for Environmental Education

(4) Conservation Education Association

(5) Association of Interpretive Naturalists

(6) American Society for Ecological Education

(7) Commission on Education of the International Union for the Conservation of Nature and Natural Resources

(8) National Association for Environmental and Outdoor Education

(9) Scientists' Institute for Public Information

(10) Other professional education groups whose purposes are similar to the goals of environmental education as stated in this report.

T. Reviewing and using current research on techniques for providing citizen involvement in the on-going planning, implementation, and evaluation phases of environmental education at the state and local levels.

3. THAT the Governor of Michigan appoint, before July 1, 1973, a permanent CITIZENS ADVISORY BOARD ON ENVIRONMENTAL EDUCATION to advise the proposed State Environmental Education Council. (TARGET: Governor's Office, Legislature, All Component Groups) This Board should be comprised of one person representing each of the following component groups of the state: agriculture, business-industry, citizen organizations, elementary-secondary schools, higher education, labor, mass communications, professional-trade associations, religious organizations, and youth organizations. The Board should also include at least one member representing each State Planning and Development Region or similar region determined by the Governor. No single member should officially represent more than one region, one component group, or a combination thereof.

Where possible, the component group representative should be a member of the appropriate commission, board, coalition, or committee representing the environmental education interests of that component (see component recommendations in this Plan).

The Board members should serve without compensation except for authorized expenses determined by the Governor.

The activities of the Board, as an official body, should be limited to providing advice to the proposed State Council unless otherwise specified in writing by the Governor.

The Board should elect its chairperson to serve a one-year term, renewable indefinitely. The term of office for Board members should be determined by the Governor.

4. THAT the Governor of Michigan establish, before July 1, 1974, STATE ENVIRONMENTAL EDUCATION REGIONS corresponding to one or a combination of the following: (TARGET: Governor's Office, Legislature, All Component Groups)

   (a) State Board of Education Tentative Area Designations (see map), or combinations thereof.

   (b) State Planning and Development Regions (see map), or combinations thereof.

   Regional environmental education offices should be established and staffed. A Regional Coordinator should report directly to the Executive Secretary of the Council or his designee. Each regional office should exist for purposes of:

   A. Inventorying, planning, developing, and evaluating all environmental communication, education, and information efforts within the region.

   B. Working directly with all local component groups (schools, youth groups, industry, agriculture, extension agents, etc.) to improve or establish local programs.

   C. Reporting the activities of the region to the State Environmental Education Council and the regional representative of the State Citizens Advisory Board on Environmental Education.

   D. Coordinating efforts among local component groups.

   E. Expending funds allocated to the region.

Long-range planning does not deal with future decisions. It deals with the futurity of present decisions.

PETER F. DRUCKER
in *Long-Range Planning for Management*, 1972

This United Nations Conference on the Human Environment, as well as all of the other forums conducted in connection with it, made one point quite clear. The survival of man, and of all other life forms on this planet, depends almost entirely upon how well, or how effectively, he can be "re-educated" . . .

PAUL PULITZER
"Summing Up," *AAEE Newsletter*
September 1972

Environmental education is essential for citizens to insure a high quality life for this and future generations. . . . That Michigan join with neighboring states to form and support a Great Lakes Environmental Education Council.

STATE ADVISORY COUNCIL FOR ENVIRONMENTAL QUALITY
"Second Annual Report"
January 1971

TENTATIVE AREA DESIGNATIONS

State Board of Education

LEGEND

a) heavy lines & numbers - SBE Area Designations

b) thin lines - Intermediate School Districts (by name)

NOTE: boundary imprecision due to scale requires that this unofficial map be a close approximation of actual Area Designations.

STATE PLANNING AND DEVELOPMENT REGIONS 1970

LEGEND

State P&D Regions

May 1971

STATE PLANNING AND DEVELOPMENT REGIONS

	Region	POPULATION 1970	POPULATION 1980	Per Cent Change 1960-70	% of State 1970
1	Detroit	4,731,655	4,951,354	13.2	53.1
2	Jackson	262,054	244,525	7.2	3.0
3	Kalamazoo Battle Creek	466,977	417,543	11.8	5.3
4	Benton Harbor St. Joseph	261,361	235,152	12.0	3.9
5	Flint	519,733	469,685	18.2	6.3
6	Lansing	378,423	298,949	26.6	4.3
7	Saginaw Bay	590,281	596,690	15.6	7.8
8	Grand Rapids Muskegon	955,813	851,125	12.5	10.8
9	Alpena	94,917	82,882	13.4	1.1
10	Traverse Bay	158,333	139,017	13.9	1.8
11	East St. Marys	48,881	51,335	4.8	0.6
12	Marquette Iron Mountain Escanaba	165,744	157,757	5.4	1.9
13	Houghton Ironwood	89,742	97,380	-7.8	1.0
	Michigan	8,875,063	7,823,194	13.4	100.0

F. Reviewing and recommending budgetary needs for the region.

G. Formulating specific and measurable program objectives and time-tables for the region.

H. Examining and reporting to the public the ecological soundness of print and non-print media distributed within the region. (Guidelines should be established.)

I. Demonstrating environmental education techniques to schools, clubs, etc.

J. Identifying and developing community resource personnel and establishing exchange programs among all local component groups.

K. Establishing a Regional Citizens Advisory Committee on Environmental Education.

5. THAT the Governor of Michigan appoint, before February 7, 1973, a fifteen-member INTERIM ENVIRONMENTAL EDUCATION ADVISORY COMMITTEE to serve in an interim advisory role *until such time as a permanent State Environmental Education Council and Citizens Advisory Board have been established.* (TARGET: Governor's Office and Legislature) In concept and principle, this temporary Committee should be an extension of the Task Force. This Committee should exist for the purposes of:

A. Interpreting this report.

B. Serving as a liaison for environmental education affairs with the U.S. Office of Environmental Education and other states and provinces.

C. Consulting with component groups and regions of the state that wish to write funding proposals.

D. Advising the Governor on environmental education matters.

E. Serving as a temporary clearinghouse for environmental education information.

F. Evaluating a financial plan (budget) for the Governor's Office and drafting and submitting a bill for legislative action to implement this Plan.

G. Cooperating with the Governor's Council on Environmental Quality on environmental education matters.

H. Reviewing and evaluating all efforts aimed at implementing this Plan.

I. Developing job descriptions for the Executive Secretary and staff of the proposed Environmental Education Council.

J. Designing guidelines for setting up the initial State Council and Citizens Advisory Board.

K. Providing opportunities for broad-based citizen involvement in the activities of this Interim Committee.

L. Maintaining liaison with the proposed Great Lakes Environmental Education Council.

M. Reporting to the general public through the mass media and through the State's environmental education mailing list (established by the Task Force) the status of this Plan.

N. Developing a time schedule for implementing the Plan.

The members of this temporary Committee should serve at the pleasure of the Governor and should serve without compensation. Expenses should be provided by the Governor's Office. The Chairperson should be elected from the membership. Members should be appointed according to the following criteria:

(1) At least one-third should be members of the Governor's Task Force who prepared the state Plan.

(2) Individuals who have the expertise and commitment to accomplish items A-N, above.

(3) Individuals who by nature of their current position can bring needed resources to the Committee.

6. THAT the Governor of Michigan support and advance the establishment of a GREAT LAKES ENVIRONMENTAL EDUCATION COUNCIL comprised of official representatives from the appropriate states and provinces. (This Council is currently being developed.) (TARGET: Governor's Office of Michigan and Adjoining States and Provinces)

7. THAT the Governor be asked to request from the State Legislature the sum of $80,000 to fund the establishment and operation of the recommended Council and Citizens Advisory Board for fiscal year 1973-74.[1] (TARGET: Governor, State Legislature, All Component Groups)

[1] A recommended budget is available upon request from the Executive Office of the Governor.

THE GREAT LAKES

There is, for example, cause for optimism in the very complexity of the issues generated by the environmental crisis; once the links between the separate parts of the problem are perceived, it becomes possible to see new means of solving the whole.

DR. BARRY COMMONER
The Closing Circle, 1971

There is no way to understand the real options involved in the future unless you become involved in creating them.

DR. ROBERT THEOBALD
in "Viewers Guide to Population and the American Future," 1972

Not using our planning capability is, of course, no solution as such; it's simply a decision to do something else. We are almost certain to face disaster if we don't plan; we are almost certain to increase the likelihood of having a better world if we plan well.

DR. DONALD N. MICHAEL
The Unprepared Society, 1968

Overall Constraints

A "constraint" is a problem or obstacle which, if not overcome, may prevent at least one of the recommendations listed from being carried out. Constraints may be actual or perceived limitations of human and physical resources, time, space, or money, or they may be an undesirable ranking of priorities. They may be limitations in the competencies of people, or difficulties arising from the number or characteristics of target populations. They may be competing interests, or the obsolesence of particular administrative structures, organizations, institutions, or value systems which need to be dealt with before recommendations can be made. The identification of constraints should be as specific as possible so that action may be taken to overcome them.

Implementation of the overall recommendations can occur only over a period of time involving a number of procedures. Since this Plan is concerned with change, a major constraint will be resistance to change within organizations and institutions.

Such resistance appears within the categories of time, personal knowledge and skill. It takes time to introduce new methods designed to accomplish goals. Haste becomes self-defeating when it creates anxiety and stress. If ideas must be compromised, this takes more time. There is a tendency among many people to favor "crash programs," indicating a desire to leap from one crisis to the next (assuming that each crisis is solved as a program is completed).

Wide public support for the Plan's recommendations, while necessary for their adoption, is also a constraint because some people are not fully aware of, or do not feel the need for, environmental education.

Personal knowledge involves an understanding of governmental and institutional policies and procedures. This knowledge does not exist on a large scale for a number of reasons, including a high degree of complexity within institutions,

frustration related to attempts to deal with various groups, a wide range of alternative choices concerned with implementing ideas, and a diversity of types of people.

People do not directly connect personal responsibility with the action needed to implement abstract concepts. Where specific responsibilities exist, they are often unclear and overlap among agencies or institutions. Lines of authority and responsibility become confusing. Imbalances exist and gaps appear in certain areas, while in others too many groups work on the same issue at the same time.

Other characteristics have often stood in the way of change, including an innate fear of change and self-images that lead to professional jealousies. Many people, as a result of increased frustration and a sense of futility, become impatient with slow change, thus adding greater stress. Somewhere, existing and new social structures will be needed to deal with yet unknown institutional and related societal problems.

There is also a feeling of lack of faith in a document—people think "it looks good on paper, but . . . ." Organizational problems commonly stem from a basic lack of sound relationships, not only between organizations, but also between individuals and ideas. Methods of data gathering and their proper application are, in some instances, inadequate. Governmental units are fragmented and in need of updating to meet the needs of the people they seek to serve. The locus of authority for environmental education within the state is not always clear.

People too often do not have the opportunity to gain knowledge, either because it is not available or because it is intentionally withheld. The public must be able to check policies, and individuals must be allowed to express themselves. Effective communication channels need to be opened. "Red tape," caused by unclear responsibilities and intricate procedures, needs to be lessened.

Often well-meaning individuals or interest

How can I do new math with an old math mind?

CHARLIE BROWN

I find man utterly unaware of what his wealth is or what his fundamental capability is. He says time and again, "We can't afford it." For instance, we are saying now that we can't afford to do anything about pollution but after the costs of not doing something about pollution have multiplied manifold beyond what it would cost us to correct it now, we will spend manifold what it would cost us now to correct it.

DR. R. BUCKMINSTER FULLER
at U.S. Congress Hearings on Technology and the Human Environment, March 4, 1969

One new prototype bomber fully equipped would pay for 250,000 teacher salaries this year, or 30 science facilities each with 1,000 students, or 75 fully-equipped 100-bed hospitals . . .

***in World Facts and Trends*, 1972**

groups do not adequately understand the mechanics that are necessary to achieve goals. Though these individuals or groups may possess a clear idea of goals and objectives, they may be lost when technicians start to explain laws, engineering, and economics. By the same token, quite often the technician, though well versed in the latest environmental technology and aware of financial and legal problems, is lacking in adequate perception of goals.

While funding itself may appear to be a simple constraint, the reasons why money is not available could possibly be found in the above problems related to change. Sometimes, lack of funds is a major constraint only on the surface, while the root of the problem lies in the ranking of priorities. Short-range priorities, insensitivity to public needs, and lack of knowledge are basic obstacles and are firmly connected with both personal and institutional arrangements.

In sum, there are significant and extremely complex barriers preventing some aspects of some recommendations from being accomplished. Only a coordinated, comprehensive attack can remove many of the barriers.

Overall Strategies

A "strategy" is a procedural outline of *how* to initiate recommendations or overcome constraints. It includes steps which are definite, immediate, specific, and concrete. Their completion is clearly visible. A strategy may also be a sequential list of the actions that the Task Force or proposed Interim Committee (see Recommendation 5) takes to permanently structure environmental education programs into the various groups.

To ensure the implementation of recommendations for the State of Michigan and to help overcome constraints, the Task Force or Interim Committee should:

A. Submit the state Plan to the Governor and ask for approval and financial support.

B. Submit suggestions for funding the Interim Environmental Education Advisory Committee (the bridge between the Task Force and the proposed Environmental Education Council).

C. Recommend to the Governor a list of names for the Interim Environmental Education Advisory Committee.

D. Assign to members of the Interim Committee or other individuals the responsibility of ensuring that each recommendation and strategy outlined in each component of this Plan is carried out, by determining:

(1) who is to do it

(2) how it is to be done

(3) when it is to be done

(4) what is to be accepted as evidence that it has been done.

E. Appoint individuals to work with the Governor's Office to assist him in fulfilling each Overall Recommendation.

F. Recommend that the Chairman of the Task Force meet with the Governor to stress major recommendations and urge early appointment of the proposed Interim Environmental Education Advisory Committee, the Environmental Education Council, and its supporting Citizens Advisory Board.

G. Write a proposal to obtain funds from the Environmental Education Act of 1970 to support the proposed statewide Council and Citizens Advisory Board.

H. Monitor the actions taken on the proposed budget, which was submitted to the Governor's Office, for funding the recommended State Environmental Education Council and Citizens Advisory Board for fiscal year 1973-74, and develop a strategy to implement the budget recommendations.

I. Identify additional recommendations, constraints, and strategies for all components of this Plan.

Component Recommendations

A "component group" is a segment of the state's population. Its members share certain characteristics, such as being an educator, a member of a citizens organization or labor group, or an employee of a state agency. Individuals may, of course, have characteristics in common with more than one component group. The component group designations in this report are for communication and organization purposes only.

Components may be modified or re-grouped to facilitate the implementation and evaluation phases of this Plan. Specification of exactly who belongs to each component group is presented in the appropriate component section. There is no citizen of the state who does not belong to at least one of the twelve component groups identified.

For each of the twelve component groups listed in this Plan, a series of **recommendations** has been generated through the process discussed earlier (see Chapter II). Following the listed recommendations, important **constraints** and **strategies** are presented. The following component groups are listed in alphabetical order:

COMPONENT GROUPS OF STATE PLAN

1. Agriculture
2. Business and Industry
3. Citizen Organizations
4. Elementary and Secondary Schools
5. Government
6. Higher Education
7. Individual Citizens
8. Labor
9. Mass Communications
10. Professional and Trade Associations
11. Religious Organizations
12. Youth Organizations

STATE PLAN

survival
is what
we're about!

Agriculture

This component includes people who produce agricultural goods and services. Included are farm suppliers, farmers, marketing firms, processors, transportation services, product distributors, farm and commodity organizations, and persons or organizations who provide education and information services to agriculture (such as Cooperative Extension Agents). The Governor's Task Force RECOMMENDS TO AGRICULTURE OF MICHIGAN:

8. THAT an Advisory Committee on Environmental Education in Agriculture be established. (TARGET: All Components) This Committee should be comprised of members representing:
   (a) The State Department of Agriculture
   (b) The State Department of Education
   (c) The Michigan Farm Bureau
   (d) The Cooperative Extension Service
   (e) The Michigan Association of Future Farmers of America (youth and adult representation)
   (f) 4-H (youth and adult representation)
   (g) The State FFA Advisory Committee
   (h) Other youth, government, citizen and professional groups interested in agricultural environmental education.

   The purposes of this Committee should be:

   A. To inventory and evaluate agricultural environmental education materials; available speakers; resource personnel; public attitudes toward agriculture and the environment; etc.

   B. To develop new education materials that
      (1) interpret agriculture's environmental problems and opportunities to urban and suburban populations (youth and adult).
      (2) interpret urban and suburban environmental problems and oppor-

tunities to rural populations (youth and adult).

(3) integrate environmental concepts into all phases of the agricultural chain: supplying (machinery, fertilizers, chemicals, feed, credit, insurance, technical services, etc.), farming (producing raw materials), marketing, processing, transporting and distributing.

C. To initiate environmental education programs designed to assist producers in making decisions to maintain and improve environmental quality.

D. To develop, in cooperation with the State Department of Education, a list of environmental education "performance objectives" (see Glossary) for agricultural vocational education programs.

E. To develop guidelines for integrating environmental education into all phases and kinds of agricultural education (youth and adult).

F. To study the State Master Plan for Environmental Education, and the State Department of Education "Guidelines for Environmental Education in Elementary and Secondary Schools," and to evaluate agricultural environmental education and information programs for their consistency with these two documents.

G. To study and report, before 1977, on the status, growth, trends, and needs of environmental education in agriculture. The report should be transmitted to the State Environmental Education Council (see Recommendation 2) through agriculture's representative on the State Citizens Advisory Board on Environmental Education (see Recommendation 3).

H. To identify model environmental education programs in agriculture throughout the state, nation, and world and distribute the information to agriculture groups in Michigan.

We urge all persons engaged in agriculture to become informed of pollution sources and discipline themselves so as not to add to the problem . . .

policy adopted at the Michigan Farm Bureau Annual Meeting, 1970

The First Law of Ecology:
Everything Is Connected to Everything Else.
The Second Law of Ecology:
Everything Must Go Somewhere.
The Third Law of Ecology:
Nature Knows Best.
The Fourth Law of Ecology:
There Is No Such Thing as a Free Lunch.

DR. BARRY COMMONER
***The Closing Circle*, 1971**

To pretend that these problems are not ours is like telling a fellow passenger that his end of the boat is sinking. We are all passengers aboard the good ship Earth, and we share a compartment called Michigan.

9. THAT each agricultural group (FFA, 4-H, etc.) appoint or elect an Environmental Education Coordinator to function as a liaison with the Advisory Committee on Environmental Education in Agriculture (see Recommendation 8). (TARGET: All Agricultural Groups)

10. THAT Extension and other agricultural education and information representatives be included on governmental and other environmental education committees, boards, commissions, and councils. (TARGET: All Component Groups)

11. THAT agricultural businesses provide and publicize opportunities for young and adult citizens from all areas of the state to visit farms and experience first-hand the direct dependence of man upon his environment. (TARGET: All Agribusiness)

12. THAT producers and their organizations establish cooperative programs with vocational agriculture teachers, Cooperative Extension Agents, mass media, etc., to disseminate environmental education information on the environmental implications of agricultural products and practices through conferences, meetings, tours, etc. (TARGET: All Agriculture, Professional and Trade Associations, Elementary-Secondary Schools, Cooperative Extension Services, Mass Communications)

Constraints

The obstacles preventing implementation of some new programs in agriculture are complex and are linked to societal patterns and traditions.

Some farmers, for example, underestimate the influence of agricultural pollution on environmental quality. Because there is a dependency of man on an agriculturally based life-support system, agriculture must realize that it can influence man's life-system through unwise management.

In agriculture, long-term survival goals are often second to short-term economic, food, and fiber demands. The long-term effects of pesticides, of the "green revolution," etc. are not clear. There is a tendency to solve the demands for food and fiber only by increasing production, rather than by eliminating excessive human and industrial consumption. Short-range economic goals applied on a less than global basis, again, seem to take precedence and dictate the nature of much agricultural information. These problems are compounded by the relatively small margin of profit on which farmers operate. Also, many social, environmental, and aesthetic costs and benefits of agricultural operations are low priority. Short-range economic pragmatism and individualism, once an asset, is thus an obstacle to the long-range protection of the environment sustaining us.

Urbanization and suburbanization have created environmental education barriers in agriculture. The power to make agricultural decisions and statewide educational decisions has shifted from rural to urban areas because people have shifted. Youth raised in urban areas often do not understand their agricultural dependence; therefore, an essential part of an urban environmental education program is to study the survival value of protecting and improving prime agricultural lands. Some farmers, however, feel that urban-oriented environmental education programs exclude their interests. Hence they fail to support vital programs.

Also, just as some urbanites do not have rural experiences and therefore cannot understand many rural problems, some rural populations lack urban experiences and likewise cannot understand the magnitude of urban environmental degradation. The tendency to not see beyond one's immediate environment creates educational problems for both rural and urban populations.

Another obstacle is the stereotype some people have concerning a farm or a farmer. Although farming today is highly complex and technical, some citizens still see the farmer in the traditional images portrayed by some television programs

and printed materials. Also, as the size of farm operations has increased, environmental problems have likewise intensified (for example, the handling of animal wastes). Thus the need to provide each farmer and potential farmer with an environmental education has also increased.

Strategies

To ensure implementation of the recommendations for agriculture and to help overcome the constraints, the Governor's Task Force suggests that the appropriate groups (see Overall Strategy D, p. 42):

A. Appoint a committee to meet with the Cooperative Extension Service concerning agriculture's recommendations.

B. Provide information on the state Plan at the State FFA Convention and Regional Leadership Conferences.

C. Identify agricultural environmental education expertise, organizations, and sources of assistance.

D. Meet with the State Departments of Education and Agriculture, Michigan Association of FFA, Michigan Farm Bureau, and Michigan Chapter of the Soil Conservation society of America to identify additional recommendations, constraints, and strategies for agriculture.

Political money is different from economic money. Political money is what people visualize something costing, not its cost as measured against time and benefits.

ROYCE HANSON
in *The Problem of Solid-Waste Disposal*, 1972

There is a story of a man who fell from the top of the Empire State Building; and he was heard to say to himself, as he whistled past the second floor,
"Well, I'm all right so far."

GEOFFREY VICKERS
Value Systems and Social Process, 1968

Business and Industry

The business and industry component includes management, stockholders, employees, consultants, and in some ways, customers. The Governor's Task Force RECOMMENDS TO BUSINESS AND INDUSTRY OF MICHIGAN:

13. THAT industry establish and maintain an Environmental Education Commission for Business and Industry for purposes of: (TARGET: Business and Industry, State Chamber of Commerce)
    A. Studying and reporting to the State Environmental Education Council (see Recommendation 2), before 1977, through the Business-Industry representative on the Citizens Advisory Board (see Recommendation 3), environmental education and information needs, problems, and alternative solutions of industry.
    B. Establishing in-house environmental education programs and services to remind the business and industry community of its responsibility for environmentally sound reuse, consumption, and disposal of products and services.
    C. Establishing a clearinghouse for environmental education and information for use by businesses and industries.
    D. Sponsoring workshops for business and industrial leaders in environmental education.
    E. Working toward improving the credibility of industry concerning environmental matters.
    F. Reviewing standard job descriptions and recommending the addition of environmental knowledge to the requirements of positions having a direct impact on the environment.
14. THAT business and industrial management make additional commitments to assist in financing environmental education and information programs. (TARGET: Business and Industrial Management)

15. THAT business and industry inform the public of the role business and industry can play in the achievement of environmental education goals. (TARGET: Business and Industry and Individual Citizens)

16. THAT business and industry inform consumers of their joint responsibility for environmentally sound reuse, consumption, and disposal of products and services. (TARGET: Business and Industry and Individual Citizens)

17. THAT business and industry inform people of the economic relationships between private interests and public welfare and that modern behavioral approaches in business and industry are socially motivated as well as profit oriented. (TARGET: Business and Industry)

18. THAT business and industry information and education representatives be included on public environmental education committees and commissions. (TARGET: All Component Groups)

19. THAT environmental expertise from public sectors be included on advisory committees to business and industry. (TARGET: All Component Groups)

20. THAT business and industry solicit public feedback on the value of their environmental information and education programs. (TARGET: All Component Groups)

21. THAT representative community groups be invited to observe the efforts and obstacles of business and industry in controlling and preventing problems of environmental quality. (TARGET: All Component Groups)

22. THAT representative interest groups meet in small groups with business and industry to outline the problems and concerns that each feels for the other regarding their environmental education efforts. (TARGET: All Component Groups)

If proper environmental education is made available to all Americans beginning at the primary school level and continuing on through secondary and higher learning, a major step forward will be made . . . there is no question but that we must have an increasing awareness of our environment and man's ability to live in that environment.

JOHN T. CONWAY
Executive Assistant to Chairman of the Board, Consolidated Edison Company of New York, at U.S. Congress Hearings on Environmental Education, April 24, 1970

It is a commonplace of modern technology that there is a high measure of certainty that problems have solutions before there is knowledge of how they are to be solved.

JOHN KENNETH GALBRAITH
***The New Industrial State*, 1967**

Constraints

There are a number of obstacles and problems that may prevent the recommendations from being implemented and accomplished by the business and industry component. A large obstacle appears to be the credibility gap between industry and the general public; some people do not always believe what industry says. There is a stereotyped, simplistic competition between some environmental groups and business interests.

Economic gain, in some cases, continues to outweigh the economic or social advantages of environmental improvements. Short-run costs and benefits may possibly be a priority over longer-range costs and benefits. Many social costs are not calculated in decision-making models. Some job descriptions in industry inappropriately lack the requirement of environmental knowledge.

In some firms, environmental education is treated as a public image problem rather than as a problem of reshaping human values to harmonize with a global environment. For many small businesses, there is a lack of funding, space, and equipment for environmental education and information programs.

Many people perceive the businesses and industries of the state as a homogeneous group, whereas they are actually highly diversified and represent many value orientations.

Strategies

To ensure implementation of the recommendations for business and industry and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Develop a committee to communicate the recommendations of this component group to the State Chamber of Commerce, to the major industrial concerns in the state, and to the public.

B. Identify exemplary environmental education and information programs in industry and distribute this information widely to encourage such programs.

C. Approach foundations and industry directly to request their assistance in funding the implementation and evaluation of recommendations of the state Plan.

D. Conduct a series of workshops with key industrial leaders to help devise means for implementing and evaluating the proposed recommendations and overcoming the identified constraints.

E. Publicize the contents of the state Plan through existing media in the business and industry community.

F. Identify additional recommendations, constraints, and strategies for this component.

The enactment of such an education program would instill in the citizen an ability to foresee the long-range consequences of man-made projects before they occur. Planning and design with these consequences in mind could then serve as the primary means to insuring environmental protection rather than penalizing violators after the fact.

REX WHITAKER ALLEN
President, American Institute of Architects
at U.S. Congress Hearings on Environmental Education, April 7, 1970

Citizen Organizations

The citizen organization component refers to groups of citizens who have organized for action in one or more areas of public concern. Such organizations usually have no legal connection with governmental units. Included in this component are women's clubs, political action groups, sportsmen's clubs and organizations, environmental action groups, and educational organizations. The Governor's Task Force RECOMMENDS TO CITIZEN ORGANIZATIONS OF MICHIGAN:

23. THAT an Environmental Education Coalition of Citizen Organizations be established with broad representation for purposes of: (TARGET: All Citizen Organizations)
    A. Initiating and coordinating joint programs in environmental communication, education, and information in cooperation with the proposed State Environmental Education Council (see Recommendation 2).
    B. Assisting each citizen organization to develop its own environmental program, which should ultimately contribute to statewide environmental education goals.
    C. Developing a detailed plan for immediate (1 year) environmental education action.
    D. Evaluating and reporting citizen organization efforts in environmental education on a continuing basis through the citizen organization member of the Citizens Advisory Board (see Recommendation 3), and preparing a formal report on the growth, status, needs, and recommendations of citizen organizations in environmental education before 1977.
    E. Providing guidance to individuals in forming or identifying and joining organizations to effect environmental change that individuals alone may not be able to accomplish.

F. Identifying and distributing a list of significant citizen organizations.

G. Assisting each citizen organization in developing an environmental education philosophy and designing and evaluating goals and objectives to incorporate into programs.

H. Seeking financial support for study of the status, growth, and nature of environmental education among citizen organizations in Michigan.

I. Identifying consultants who can:

(1) Help citizen groups to formulate, conduct, and evaluate environmental education programs.

(2) Collect and distribute resource materials useful to citizen groups in the development of environmental education programs.

(3) Help each citizen group to develop an environmental philosophy and to design, implement, and evaluate programs.

24. THAT each citizen organization or group of organizations appoint a liaison to coordinate activities and exchange information among the component groups listed in this Plan. (TARGET: All Citizen Organizations)

25. THAT citizen organizations develop programs and materials to inform their members about methods and tactics to recognize, evaluate, and react to environmental issues. They should seek ways to expose environmental misinformation and deception. (TARGET: All Citizen Organizations)

26. THAT citizen organizations identify and seek support from funding sources to implement environmental education efforts. (TARGET: All Citizen Organizations)

27. THAT citizen organizations urge their members to seek decision-making positions on public bodies and committees that are concerned with public education about environmental quality. (TARGET: All Citizen Organizations and Government)

28. THAT citizens having educational influence in urban areas place strong emphasis on the solution to current environment-related urban problems, but not exclude the solution to suburban and rural environmental problems. (TARGET: All Citizen Organizations)

29. THAT each citizen organization examine its environmental education program for consistency with the concepts, principles, and spirit of the state Plan. (TARGET: All Citizen Organizations)

30. THAT appropriate c i t i z e n organizations meet, study, and outline a strategy to evaluate and influence the overall recommendations of the state Plan and, in particular, the recommendations for the citizen organization component. (TARGET: All C i t i z e n Organizations)

Constraints

Persons in local citizen organizations sometimes lack not only environmental expertise, but also knowledge of how to implement organizational goals most effectively. Reliance on voluntary leadership sometimes causes organizational instability. Conflicts of interest among and within some organizations can create blocks to cooperation. Volunteer workers are sometimes difficult to coordinate effectively. Volunteer time is commonly limited and irregular. Also, office space is often scarce, and money is hard to raise for salaries, postage, rent, supplies, etc. Funding is especially difficult for activities related to political action. Definitions and jargon regarding environmental education are also difficult for some groups to understand. Geographical distance and the lack of resources to provide adequate channels of communication can be barriers to effective action.

Strategies

To ensure implementation of the recommendations for citizen organizations and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Appoint an individual or group to call necessary meetings and initiate action toward establishment of a statewide Environmental Education Coalition of Citizen Organizations.

B. Publicize recommendations for citizen organizations through existing mass media and citizen organization channels (newsletters, notes, etc.).

C. Conduct a series of workshops for purposes of:

(1) Identifying and sharing environmental education expertise, communication systems, information sources, etc.

(2) Gathering cooperative and coordinated support for state planning efforts as well as local community efforts.

D. Identify additional recommendations, constraints, and strategies for this component.

The best of plans still need good people to translate them into action.

JAMES DOWD
in *Long-Range Planning for Management*, 1972

I hope to do what I can to make all environmentalists aware of each other and conscious of a common cause. Because it is a common cause.

SENATOR PHILIP A. HART
"Environmental Priorities," *Regional Reporter*, 1st qtr. 1971

The major problem in environmental education is the problem of reaching all voters, both present and future. We won't be successful in solving our . . . problems with only part of our population informed. We need a systematic plan to reach all in school, and we need a program of adult education as well.

MRS. DONALD CLUSEN
Chairman, Environmental Committee, League of Women Voters
at U.S. Congress Hearings on Environmental Education, April 9, 1970

Previously unconcerned senators were moved to support . . . The senators were not so much impressed that their constituents were irate (they are accustomed to that), but that they knew how to spell strontium 90! Presumably the prospect of facing not merely an irate voter but an informed one stirred them to action.

DR. BARRY COMMONER
The Closing Circle, 1971

here are the rules

Elementary and Secondary Schools

The elementary and secondary school component refers to all sectors of public and private school systems, including students, teachers, administrators, supportive staffs, school boards, and citizen or professional advisory groups to school systems. Also included are all pre-school activities. The Governor's Task Force RECOMMENDS TO ELEMENTARY AND SECONDARY SCHOOLS IN MICHIGAN:

31. THAT each school system establish a community-wide Environmental Education Committee (including students and staff) to develop the philosophy, goals, concepts, instructional methods and evaluative techniques for environmental education for all teachers and administrators within the system. (TARGET: All Elementary and Secondary Schools and State Department of Education)

32. THAT each intermediate school district employ at least one full-time Environmental Education Coordinator. (TARGET: All Elementary and Secondary Schools and State Department of Education)

33. THAT each school system develop environmental education guidelines that are consistent with the "Guidelines for Environmental Education in Elementary and Secondary Schools" (issued by the State Department of Education) and with the concepts, principles, and spirit of this State Master Plan. (TARGET: All Elementary and Secondary Schools and State Department of Education)

34. THAT each school system: (TARGET: All Elementary and Secondary Schools, State Department of Education, and Higher Education)

    A. Inventory environmental education resources (human, films, games, simulations, publications, etc.) within its own faculties, students, and community.

B. Coordinate use of these resources to assist teachers in the system.

C. Request the assistance of the nearest institution of higher education in developing an environmental education program.

D. Evaluate and report, before 1976, its environmental education needs and programs to the State Department of Education directly, and to the State Environmental Education Council (see Recommendation 2) through the representative for elementary and secondary schools on the State Citizens Advisory Board (see Recommendation 3).

35. THAT each school system design an environmental education plan that develops and uses every existing and projected school site to improve learning opportunities. (TARGET: All Elementary and Secondary Schools and State Department of Education)

36. THAT each school system develop an environmental education program that: (TARGET: All Elementary and Secondary Schools and State Department of Education)

A. Spans existing curricula and relates environmental education to all subject areas.

B. Emphasizes the local environment with its problems of human population growth and resource consumption, solid waste disposal and recycling, air and water pollution, etc.

C. Includes global concepts and perspectives.

D. Places a high priority on the problem-solving approach to current and future problems, and on skills useful in the process of environmental problem-solving.

E. Bases its environmental teachings on accurate information.

F. Includes direct student involvement in community environmental affairs through such cooperative programs as work/study projects.

G. Ensures input from students into decision-making processes affecting their education.

37. THAT individuals seeking teacher certification obtain a minimum of 3 term-hours of credit in environmental education as defined in this Plan (also see Higher Education). (TARGET: All Elementary and Secondary Schools, State Board of Education, and Higher Education)

38. THAT school systems employ qualified environmental education specialists on a consultant basis throughout the entire system. (TARGET: All Elementary and Secondary Schools and State Department of Education)

39. THAT school systems offer local citizens and groups with environmental knowledge the opportunity to assist schools. (TARGET: All Component Groups)

40. THAT school systems use community, state, and national environmental interpretive centers to their fullest extent, where they exist. (TARGET: Elementary and Secondary Schools and Interpretive Centers)

41. THAT an Environmental Education Commission on Pre-School, or a subcommittee of an existing body, be established for purposes of: (TARGET: All Government, Mass Media, and Pre-School Interests)

A. Coordinating pre-school activities throughout the state.

B. Working with pre-school professionals in designing environmental mass media commercials and programs.

C. Working with appropriate associations and the State Departments of Social Services and Education to develop pre-school environmental education in-service programs for both professional and volunteer workers in the field.

D. Identifying and evaluating pre-school environmental education materials,

games, etc., and reporting the findings to the general public.

E. Publicizing the importance of the pre-school component to the other components and to the general public.

42. THAT professional education groups analyze the environmental content of selected children's literature throughout the state and report the findings, before 1977, to the proposed State Environmental Education Council (see Recommendation 2) through the component representative on the Citizens Advisory Board (see Recommendation 3). (TARGET: Professional Education Groups)

43. THAT public statements be written and distributed, before 1977, by authoritative groups concerning the environmental values transmitted to children by various media, public and private. (TARGET: All Component Groups)

. . . the Congress of the United States passed the Environmental Education Act. . . .
The implications are clear. If we are to make the kind of impact that is necessary for our children, youth, and adults to be conscious of what is happening to our resources, we have to begin in our elementary schools, our high schools, our colleges and universities, and our adult education courses.

DR. JOHN W. PORTER
Michigan Superintendent of Public Instruction, August 15, 1971

. . . and BE IT FURTHER RESOLVED, That the public schools of Michigan be encouraged to provide environmental education programs utilizing to fullest extent the assistance available to them from governmental sources.

Michigan Association of School Administrators
January 20, 1972

There are 20 million people in the U.S.A. UNDER 5 years of age.

To ask what part of the curriculum is "environmental education," is to ask which word is the dictionary.

Constraints

Elementary-secondary school systems are constrained by inadequate funding and a short-range-oriented ordering of priorities, due in part to a lack of understanding of the concepts of environmental education among teachers, administrators and the public. Efforts within school systems and between the community and the schools are not coordinated. School systems often suffer from inadequate materials and insufficient teacher preparation. Lack of flexibility within school systems also makes the introduction of innovations difficult.

There is a lack of tested techniques and materials for pre-school environmental education. Research is scattered and incomplete; reliable conclusions cannot be drawn easily. Many are unaware that pre-school children are more easily influenced than older children, and that pre-school environmental education is essential in order to get the highest return on the environmental education dollar over the long run. Generally, pre-school teachers are unaware of the

pre-school environmental education techniques that do exist. Many individuals and groups lack an orientation to future citizens and decision-makers.

Strategies

To ensure implementation of the recommendations for elementary-secondary schools and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Assist the State Department of Education in:
   (1) Developing environmental education guidelines for all school systems.
   (2) Supplying adequate funding for implementation of environmental education school programs.

B. Make contacts with pre-school interested professionals in universities, the State Department of Education, and other research centers and involve them in the implementation of this component's recommendations.

C. Conduct workshops and conferences to interpret environmental education and the state Plan to educational leaders, school boards, administrators, teachers, and parent and student groups.

D. Meet with the State Department of Education to encourage it to employ a full-time environmental education consultant.

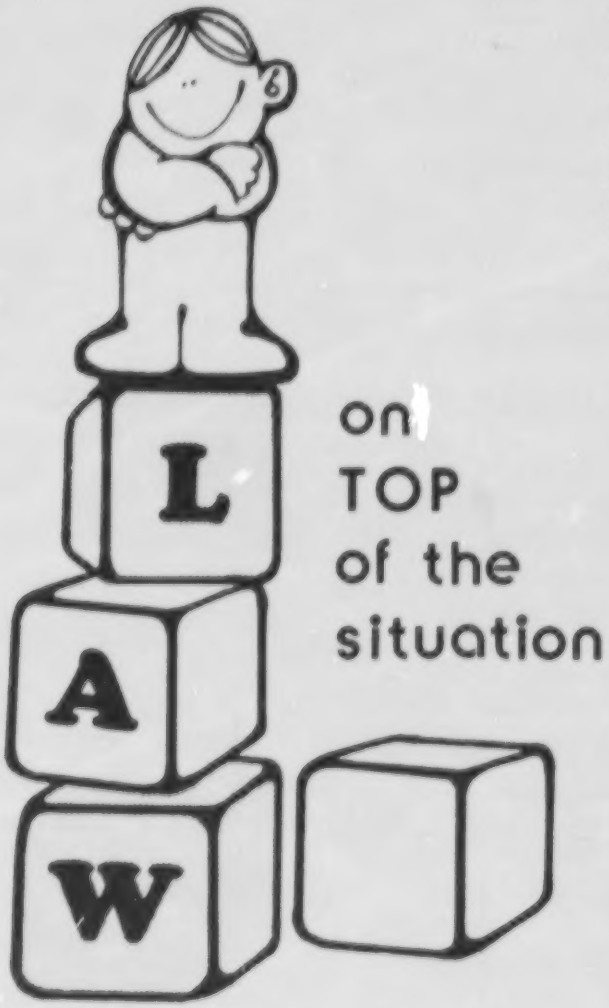
E. Identify additional recommendations, constraints, and strategies for this component.

. . . only teachers who themselves are concerned about their environmental community will develop similar behavior in their students.

in *What Kind of Environment Will Our Children Have?* published by the American Association of Colleges for Teacher Education, 1971

Man's interaction with his environment, both natural and man-produced, is the basis of all learning — the very origin and substance of education. Yet, our formal education system has done little to produce an informed citizenry, sensitive to environmental problems and prepared and motivated to work toward their solution.

from the report of the Citizens Advisory Committee on Environmental Quality to President Nixon, 1969



Government

This government component refers to all governmental entities affecting the State of Michigan. This includes all local, county, state, regional, national, and international operations that are conducted within the State or that directly affect the welfare of the people of Michigan. Included are all state agencies and departments and all quasi-governmental units (like some "nature centers"). This group includes all employees of state agencies and their consultants, associated boards, advisory groups, and specially designated tax supported groups. The Governor's Task Force RECOMMENDS TO THE GOVERNMENT OF MICHIGAN:

44. THAT a State Inter-Governmental Advisory Commission on Environmental Education and Information be appointed by the Governor of Michigan, upon the recommendation of the proposed State Environmental Education Council (see Recommendation 2), for purposes of: (TARGET: Governor's Office, State Environmental Education Council, and All Levels of Government)

    A. Evaluating and making recommendations, before 1977, to the State Environmental Education Council, to achieve consistency among government efforts in environmental education.

    B. Ensuring that a high level of environmental education competence exists among government employees assigned such responsibility.

    C. Ensuring that competitive and duplicative environmental education efforts do not exist among governmental authorities.

    D. Developing a list of government consultants with environmental education expertise and making this list available upon request.

    E. Creating a network among regional governmental councils to coordinate environmental education activities.

45. THAT environmental research and other data be made available for public use in environmental education programs. (TARGET: All Levels of Government)

46. THAT the State Department of Education, in cooperation with colleges and universities, make available, on a consultant basis, a professional environmental education planner. (TARGET: All Levels of Government)

47. THAT the proposed Environmental Education Council create annual awards and grants to be given to outstanding local environmental education programs to stimulate local program development. (TARGET: All Levels of Government)

48. THAT each appropriate governmental unit employ qualified environmental affairs consultants to respond to specific environmental education and information needs. (TARGET: All Levels of Government)

49. THAT each appropriate state agency, upon the advice of the State Environmental Education Council, establish a permanent Committee or Section on Environmental Education and Information for purposes of: (TARGET: All State Agencies)

    A. Coordinating agency environmental education activities through the proposed State Environmental Education Council.

    B. Preparing and distributing, before 1974, specific guidelines for environmental education for its constituency.[5]

    C. Translating regional, national, and international environmental education goals, recommendations, constraints, and strategies for use by other agencies and the public.

    D. Reviewing and evaluating agency environmental education programs and materials and reporting this information in writing to the State Environmental Education Council and to the citizens of Michigan, before 1977.

    E. Inventorying environmental education materials, available speakers, consultants, and laws within state agencies and making such information available to the public. (Inventories should be conducted in a valid and reliable manner by trained researchers.)

    F. Discovering sources of internal and external funds that can be channeled into environmental education and information efforts.

    G. Reviewing existing priorities within the agency and recommending, before 1977, ways to shift environmental concerns to a higher priority position, if the review of existing priorities demonstrates such a need.

    H. Coordinating the agency's environmental education and information planning, development, and evaluation efforts with the State Planning and Development Region offices, where they exist.

50. THAT the appropriate state agencies: (TARGET: All State Agencies)

    A. Develop "performance objectives" (see Glossary) for environmental education goals.

    B. Develop techniques to assess progress toward such goals.

    C. Develop techniques to assess the efficiency of environmental education activities.

51. THAT each appropriate state agency, upon the advice of the State Environmental Education Council, provide at least one person to plan, implement, and evaluate environmental education and information programs within the agency. (TARGET: All State Agencies)

52. THAT each appropriate state agency em-

[5] For example, see the "Guidelines for Environmental Education in Elementary and Secondary Schools" (Lansing, Michigan: Michigan Department of Education, 1973).

ploy, when needed, the necessary environmental education consultants to supplement that agency's in-house staff resources. (TARGET: All State Agencies)

53. THAT the appropriate state agencies, in cooperation with the proposed State Environmental Education Council, sponsor environmental education workshops for school administrators, teachers, and other community leaders, and make available the necessary resource materials to implement and evaluate programs. (TARGET: Environmental Education Council and State Agencies)

54. THAT all state agency environmental education "guidelines" (see Glossary) be formally reviewed, before 1977, by the proposed State Environmental Education Council for consistency with the concepts, principles, and spirit of the state Plan. (TARGET: State Agencies and Environmental Education Council)

Nothing could be more self-defeating than for state government to believe its role in environmental education was fulfilled through the promulgation of guidelines . . . Environmental education is the job, the vital and essential job, of convincing our society as a whole that our environmental heritage is just as precious as our heritage of freedom and just as easily lost.

SENATOR GILBERT E. BURSLEY
Chairman, Michigan Senate Education Committee, August 15, 1971

That the Department of Education be funded to employ trained environmental education consultant help.

STATE ADVISORY COUNCIL ON ENVIRONMENTAL QUALITY
"Second Annual Report," January 1971

As the needs of society increase in number and complexity, all levels of government are called upon to coordinate their planning and program implementation.

"The Governor's Special Commission on Local Government Report," March 6, 1972

Constraints

A major governmental constraint arises from uncoordinated competitive efforts. Within many governmental groups, there is a lack of qualified personnel in environmental education.

Many job descriptions, licensing regulations, etc., reflect and reinforce traditional job functions which do not require environmental knowledge for positions affecting the environment.

There is an apparent lack of public agency understanding of many environmental education matters. Many key agencies are unaware of the scope of the term "environmental education," and they often confuse it with other overlapping terms (see Chapter III).

In some state agencies, there is a lack of environmental awareness, knowledge, concern, and policies. In many cases, there is also a lack of needed resources such as time, money, space, and personnel.

There is a tendency for agencies to lag in response to newly identified needs. State

agencies often wait for crises to develop rather than taking a preventive leadership role in solving environmental and environmental education problems. In many cases, state agencies do not lack money but instead lack the needed values or arrangements of priorities to put environmental concerns foremost.

In some cases, state agencies tend to cover their commitments to environmental education and information programs in broad and abstract terminology. The general public, then, has no way of observing or determining the effectiveness of the agency's efforts. Many agencies fear public assessment of the effectiveness and efficiency of their programs.

Agency technicians, though well educated in engineering for the most part, sometimes remain unaware of real needs due to insensitivity to societal goals.

Strategies

To ensure implementation of the recommendations for Government and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Meet with the heads of various state agencies to explain in detail the concept of environmental education and the history, content, and implications of the state Plan.

B. Make contact with environmentally concerned citizen groups and request that they designate members to "watchdog" and widely communicate the response of state agencies to the recommendations of the state Plan.

C. Present to the appropriate state agencies a list of professional consultants and existing state personnel who are qualified to research and develop performance objectives for environmental education.

D. Research and communicate to various agencies information concerning model agency programs in other states and countries.

E. Provide interim environmental education consultant service to state agencies until such time as they can permanently acquire the needed professional personnel.

F. Identify additional recommendations, constraints, and strategies for this component.

During the next 10 years we will take — or fail to take — the actions which will determine whether people will inhabit the Earth very far into the future.

The late DR. RALPH A. MacMULLAN
Former Director, Michigan Department of Natural Resources
January 17, 1970

Our major concern for protection of the environment is a selfish one — "What does air, water, land, and people pollution mean to ME?" However, by taking action to educate and safeguard the "me's" of the world, the rest of nature will also benefit and the ecological interchange will continue in a healthful fashion.

MAURICE S. REIZEN, M.D.
Director, Michigan Department of Public Health

Every state is involved with programs dealing with highway construction, traffic regulation, education, water and mineral resources, conservation and recreation, industrial development, agriculture, and any number of other interests of state-wide concern. All these programs have a definite bearing on each other and may no longer be treated as separate entities . . .

COMMITTEE ON STATE PLANNING
"State Planning"
***Journal of the American Institute of Planners*, November 1950**

Higher Education

The higher education component group refers to students, faculties, and administrative and supportive staffs of the state's public and private colleges and universities. The component also includes citizen or other advisory groups to such institutions or constituencies. The Governor's Task Force RECOMMENDS TO HIGHER EDUCATION OF MICHIGAN:

55. THAT a Higher Education Commission on Environmental Education, or a subcommittee of an existing body, be formed of representatives from diverse sectors of higher education, including representatives from student groups and non-academic staffs. The Commission's purposes should be to: (TARGET: All Higher Education Interests)

    A. Develop environmental education "guidelines" (see Glossary) for higher education that are consistent with the state Plan and the recommendations of the report, *Environmental Responsibility in Higher Education: Processes and Practices* (Green Bay, Wisconsin: Office of Community Outreach, University of Wisconsin—Green Bay, 1973).

    B. Study this Plan and develop implementation plans for its recommendations.

    C. Prepare, before 1977, for the citizens of Michigan, a formal research report on the status, growth and needs of environmental education in higher education in Michigan, and transmit the report to the proposed State Environmental Education Council (see Recommendation 2) through the higher education representative on the proposed State Citizens Advisory Board (see Recommendation 3).

    D. Provide detailed information to institutions of higher education on alternative program models and existing examples of programs in higher education throughout the world. (For an example of program models, see *Environmental Education: Academia's Response*, pub-

lished by the Commission on Undergraduate Education in the Biological Sciences, American Institute of Biological Sciences, Washington, D.C., 1972.)

E. Design evaluation instruments to measure the effectiveness of teacher education programs in conveying (a) environmental and (b) environmental education content.

F. Design evaluation instruments to measure the effectiveness of alternative general environmental course curricula offered in higher education.

G. Examine and report, before July, 1974, the career opportunities and potentials in the (a) environmental and (b) environmental education areas.

H. Review and recommend to the proposed State Environmental Education Council and the State Board of Education suggested modifications, if any, in Michigan's degree, certification, and licensing requirements as these affect environmental education.

I. Develop a formal relationship with the National Foundation for Post-Secondary Education, the National Commission on Higher Education, the National Center for Educational Statistics, etc., to promote acceptance of non-traditional programs into their taxonomies and evaluative formula.

56. THAT each institution of higher education: (TARGET: All Institutions of Higher Education)

A. Identify and refine "performance objectives" (see Glossary) that relate to the goals and subgoals of environmental education.

B. Build environmental curricula to provide opportunities for students to major or minor in environmental education.

C. Initiate a study at all levels with the goal of developing environmental education as a curriculum.

D. Integrate environmental concepts into existing university curricula by using ecological examples, etc., in all appropriate courses and activities.

E. Develop environmental education programs emphasizing problems associated with densely populated areas, but not excluding global concerns.

F. Study current and potential environmental problems and publicly disseminate the results, implications, and recommendations.

G. Teach cognitive, affective, and behavioral dimensions of environmental education to pre-service and in-service teachers.

H. Educate its faculty and staff, and the general public, on environmental matters.

I. Participate in international, national, regional, and state efforts to create inter-institutional opportunities for:

(1) Exchanging students, faculty, and staff.

(2) Sharing curricular resources—faculties, materials, and other information.

(3) Collaborating on course, program, and research proposals.

(4) Jointly soliciting grant funds.

J. Develop an accountability model appropriate for environmental education.

K. Coordinate programs with extra-university activities related to the environment.

L. Develop programs to train engineers and technicians who will do research as well as implement ecological programs as they may be approved or ordered by law.

M. Identify and promote additional student involvement in matters related to en-

vironmental education activities on and off campus.

57. THAT each institution of higher education establish an Interdisciplinary Committee on Environmental Education to: (TARGET: All Institutions of Higher Education)

    A. Implement and evaluate the recommendations and guidelines developed by the proposed Higher Education Commission on Environmental Education (see Recommendation 55) and other professional groups.

    B. Evaluate programs for consistency with the concepts, principles, and spirit of the state Plan.

    C. Identify environmental education consultants in higher education who can be used by the public and government in implementing the recommendations of the state Plan.

    D. Create an intra-institutional network to obtain, analyze, store, diffuse and translate environmental and environmental education information.

    E. Affiliate with professional associations concerned with environmental education in higher education (see Recommendation 2-S) and use their resources.

    F. Create checks to ensure that diverse yet holistic, interdisciplinary, cross-cultural, process-oriented, problem-solving approaches are used in all aspects of environmental and environmental education instruction.

    G. Identify a campus-wide program coordinator for off-campus environmental study.

58. THAT a course in environmental studies be required for a bachelor's degree in all Michigan colleges and universities. (TARGET: All Institutions of Higher Education and State Board of Education)

Constraints

Because of the traditional orientation of some departments in academic institutions, it is difficult to initiate interdepartmental approaches to environmental education within the university community. Many faculty members are not concerned with problem-oriented activities but prefer to concentrate on pure research, which may or may not shed light on today's problems. Many researchers fear losing their "objectivity" by becoming involved in action-oriented programs; they prefer being observers and describing problems rather than playing an active role in their solution. The lack of technicians and engineers trained to think ecologically is another problem.

Built-in inflexibility in scheduling is a barrier often confronted by students. Although lack of funds is certainly a constraint, this may more realistically be viewed as the ranking of funding priorities within our culture, rather than the absolute lack of funds.

In some instances, there is a clear lack of inter- and intra-institutional program diversity; traditional approaches having questionable impact on their participants tend to dominate the present pattern. Little analysis has been conducted to separate successful programs from unsuccessful ones.

Faculty insecurity often arises in interdisciplinary environmental education programs. Insecurity may arise from lack of administrative support and understanding, traditional budgetary divisions, and disciplinary faculty evaluative and reward systems. Also, some accrediting agencies do not actively support or encourage the nontraditional approaches implied by environmental education.

Strategies

To ensure implementation of the recommendations for higher education and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Appoint a committee to investigate through various funding agencies the possibilities and probabilities of financial support for the proposed Higher Education Commission on Environmental Education or an alternative.

B. Assist the proposed State Higher Education Commission on Environmental Education in the selection of its members.

C. Identify key environmental education expertise in higher education and distribute the list.

D. Conduct workshops to interpret the state Plan to representatives from higher education.

E. Publicize the state Plan through existing faculty, staff and student publications.

F. Request the assistance of professional and trade associations in providing suggestions on environmental education program design, and on implementation of the recommendations for higher education.

G. Compile and distribute a short, selective bibliography to assist institutions of higher education in delineating and selecting alternative program designs.

H. Obtain and distribute to each institution of higher education in Michigan the proceedings of the national conference on environmental education, *Environmental Responsibility in Higher Education: Processes and Practices*; and the report, *Environmental Education: Academia's Response*.

I. Identify additional recommendations, constraints, and strategies for this component.

Consider the problem of a freshman entering college next September and who wants to teach first grade . . . our problem is this: We have to teach our student to teach students who were born in 1970, who will not leave our school system until 1991 or beyond, and who will live two-thirds of their lives *after* the year 2000. Clearly, we must orient our programs to the future.

DR. THOMAS L. GOODALE
"An Environment for Leisure: The Challenge Multiplied"
in *Processes For A Quality Environment*, 1971

How strange it is, then, that we do not insist that each citizen have some rudimentary knowledge about the ecological systems that sustain us. Some knowledge is necessary as to how the life support system of the planet works and what keeps the biosphere healthy – also, as to how our food production systems work, and how the air purification systems work. This deficiency represents, in my own view, a massive flaw in public education. . . .

DR. JOHN CANTLON
Provost, Michigan State University
at U.S. Congress Hearings on Environmental Education, April 9, 1970

The Association, composed of more than 850 colleges and universities, recognizes that [environmental] education must not be considered as one more discreet field of study. Rather, the thrust of AACTE is toward the development of a dimension or an orientation integrated into all of teacher education so that every new teacher, whatever his specialty, is capable of enabling students to achieve those attitudes and values necessary for man to regain a balanced relationship with his environment.

DR. EDWARD C. POMEROY
Executive Director, American Association of Colleges for Teacher Education
in *What Kind of Environment Will Our Children Have?* (by AACTE), 1971

Individual Citizens

The individual citizen component includes every citizen of the State of Michigan whether or not he or she is a member of any other component group. No one is excluded. The Governor's Task Force RECOMMENDS TO ALL CITIZENS OF MICHIGAN:

59. THAT individuals monitor their own daily activities to determine whether or not they personally are living in a style compatible with the long-term health of the global environment. (TARGET: The General Public and All Component Groups)

60. THAT individuals continually observe signs of environmental degradation and pollution in their communities and report unlawful actions to appropriate authorities. (TARGET: The General Public and All Component Groups)

61. THAT individuals inform themselves on environmental matters by personal study and by requesting that the media provide accurate information through public service messages, news, and programming. (TARGET: The General Public and All Component Groups)

62. THAT individuals discuss with their neighbors and others the problems associated with unhealthy environments. (TARGET: The General Public and All Component Groups)

63. THAT individuals or small groups organize to improve the quality of their neighborhood and individual homes. (TARGET: The General Public and All Component Groups)

64. THAT individuals combine into small community or neighborhood groups to form block clubs of citizens working together to improve the quality of their neighborhoods. (TARGET: The General Public and All Component Groups)

65. THAT individuals question candidates for public office concerning their stand on en-

vironmental education and vote and lobby accordingly. (TARGET: The General Public and All Component Groups)

66. THAT individual citizens remind the business community of its responsibility for environmentally sound reuse, consumption and disposal of products and services. (TARGET: Individual Citizens and Business and Industry)

Constraints

Failing to see a direct effect on themselves, individual citizens are often apathetic about environmental concerns and are reluctant to spend time or money on things they do not see as immediately rewarding. To many citizens, environmental problems are not "personal" problems. This reflects the inadequate exposure of citizens to high quality information and to informative media programming on environmental problems and solutions.

Representatives of the general public occupying new positions of influence in the decision-making process, who hold commendable ideas with regard to environmental goals, are often ineffective due to their lack of understanding of environmental engineering, legal problems, economics, and political processes.

Strategies

To promote implementation of the recommendations for individual citizens and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Meet with leaders from component groups listed in this Plan to develop environmental education programs and strategies aimed at the general public.

B. Provide guidance to individuals in forming or identifying and joining appropriate organizations to accomplish environmental change that individuals alone may not be able to effect.

C. Appoint a committee to locate or develop a checklist that individual citizens can use to evaluate their own life-styles to determine if they are environmentally sound.

D. Appoint a committee to locate or develop methods of monitoring local pollution problems in such a way that such monitoring can be done by citizens.

E. Appoint a committee to make available at public libraries in the State a list of readings on environmental education for the general public.

F. Identify additional recommendations, constraints, and strategies for this component.

Despite the barrage of popular information, it is still difficult for the nonspecialist to obtain accurate information on the spectrum of environmental problems.

BILL KOPPER
"The ENACT Ecology Center"
Regional Reporter, 1st qtr. 1971

We see environmental education not as something to be "taught" but a condition to be lived.

"Environmental Education That Cannot Wait,"
American Education, May 1971

Silence betokens consent.
PERSIAN PROVERB

Labor

The labor component refers to labor organizations and to individuals or groups that are not members of organized labor but are active in the state labor force. The Governor's Task Force RECOMMENDS TO LABOR OF MICHIGAN:

67. THAT labor establish an Inter-Labor Environmental Education and Information Committee for purposes of: (TARGET: All Labor Organizations and Business and Industry)

    A. Informing labor of its role in attaining the goals for environmental education.

    B. Developing programs between labor and industry to aim toward achievement of environmental education.

    C. Informing the general public of the environmental health concerns of labor.

    D. Informing the general public of the need to increase government enforcement and self-enforcement of environmental regulations, laws, and guidelines.

    E. Preparing a detailed report, before 1977, on the status, growth, needs and recommendations of the environmental information and education programs of labor, and submitting this report to the State Council (see Recommendation 2) through the labor representative on the proposed State Citizens Advisory Board (see Recommendation 3).

    THAT government and community groups be invited to observe the efforts and problems of labor in maintaining environmental quality and preventing environmental problems within industrial settings. (TARGET: All Labor Organizations, Governments, Individual Citizens, and Business and Industry)

69. THAT inter-labor and industry review boards be established to examine programs, policies and public information literature for their consistency with environmental research. (TARGET: Labor and Industry)

70. THAT labor representatives serve on governmental and other environmental education and information committees and commissions. (TARGET: Labor and Government)

71. THAT labor solicit full retiree participation in environmental education and action programs. (TARGET: Labor)

72. THAT environmental education experts from public sectors be invited to sit on advisory committees in labor. (TARGET: Labor)

Constraints

There is an apparent lack of adequate environmental communication and cooperation among and within labor organizations. Also, there is insufficient environmental education knowledge in some labor organizations.

The fact that technological values often override environmental values proruces problems. Other educational obstacles are the lack of centralized sources of information that labor can use to conduct environmental education and information programs, and insufficient understanding of labor problems by the media, educators and the general public.

Strategies

To ensure implementation of the recommendations for labor and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Publicize the state Plan among labor groups, using existing labor publications.

B. Conduct workshops with labor leaders and concerned rank and file workers to communicate the contents of this state Plan and how it can be implemented and evaluated.

C. Identify environmental education expertise in labor groups.

D. Collect and distribute environmental education and information literature to labor groups.

E. Appoint a committee to work with Labor in implementing the recommendations of this Plan.

F. Identify additional recommendations, constraints, and strategies for this component.

. . . not a great deal of environmental information is getting to workers . . . there is a need to make available to them information that addresses their concerns — both as individuals who are exposed to a variety of hazards in the workplace environment and as citizens of the community at large.

"Assistance to Industrial Workers"
Environment, May 1973

. . . the teaching will have to be done not by precept but by example.

LEONARD WOODCOCK
UAW President
"The Crisis of Our Environment"
UAW Family Education Center, June 15, 1970

Today time is of the essence. There is not only a need for action from countries in the world, but from all groups of peoples.

OLGA M. MADAR
Vice President, Director of Department of Conservation and Resource Development, UAW
in "The Crisis of Our Environment," 1970

Environmental Educat
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ledge to solve real-life
ty problems?

ENTIFIES GOALS

s to such questions do not
ily nor quickly. It is for
on that the Plan identifies
owing goals for en-
ital education: "The goals
nmental education in the
Michigan are to develop in
(a) an awareness, un-
ing and concern for the
ent with its associated
s, and (b) the knowledge
skill, motivation and commitment
to work toward solutions to these
current and projected problems."
Since these goals are very broad,
the Plan points out three major
areas of concern for achieving the
goals.

The first is that individuals and
groups must "obtain an un-
derstanding that man is an in-
separable part of an en-
vironmental system and that
whatever he does alters his
surroundings." Secondly, people
must "obtain a basic knowledge of
how environmental problems can
be solved, a
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Mass Communications

The mass communication component includes all mass media interests. This component comprises all print and broadcast media of both profit and non-profit organizations. Also included are various advisory groups to the mass media and all governmental media-regulatory authorities. Newsletters, newspapers, and bulletins distributed to the general public by any organization and advertising agencies using mass communication systems are also included in this component. The Governor's Task Force RECOMMENDS TO MASS COMMUNICATION OF MICHIGAN:

73. THAT all Michigan press and broadcast associations cooperatively establish a Commission on Environmental Communication for purposes of: (TARGET: All Mass Media)

   A. Suggesting standards and guidelines for environmental editors and writers.

   B. Identifying existing environmental expertise among media representatives.

   C. Preparing a detailed report, before 1977, for the citizens of Michigan on the responsibility, status, growth, needs and recommendations of environmental communication in Michigan, and transmitting this report to the State Council (see Recommendation 2) through the mass communication representative on the proposed Citizens Advisory Board (see Recommendation 3).

   D. Interpreting the state Plan to the media.

   E. Reviewing and rewarding responsible environmental communication in the state.

   F. Devising and implementing a scholarship program to assist interested students in attaining an appropriate education in environmental communication.

   G. Publicizing to schools and colleges the need for trained personnel in environmental communication.

H. Designing and initiating research to measure the effect of mass media in developing environmental attitudes and in conveying environmental concepts.

I. Writing a directory listing non-government but authoritative sources of environmental information for use by news reporters.

74. THAT all Michigan press and broadcast associations work together to sponsor workshops for media staff on Michigan's environmental communication concerns. (TARGET: All Mass Media)

75. THAT representatives from all Michigan press and broadcast associations meet with journalism educators in colleges and universities to develop guidelines for environmental communication training. (TARGET: All Mass Media and Higher Education)

76. THAT the mass media appoint representatives to work with environmental boards and commissions representing other component groups listed in the state Plan for purposes of: (TARGET: All Mass Media)

A. Exchanging information and expertise.

B. Developing cooperative and coordinated environmental communication, education, and information efforts.

77. THAT the mass media orient their environmental news coverage and other programming to include the underlying "causes" of environmental problems rather than only the "symptoms." (TARGET: All Mass Media)

78. THAT educational broadcasting media in Michigan develop a plan to increase environmental education programming. (TARGET: All Educational Broadcasting Media)

79. THAT each mass communication medium establish an environmental "action line" to encourage citizen input to the media. (TARGET: All Mass Media and Individual Citizens)

On the average, television in our lives is watched 5½ hours per day. Before entering school, children will have spent 3,000-4,000 hours in front of a television. By the time they finish high school they will probably have seen some 15,000 hours of television compared with 10,000 hours spent in formal schooling.

***New York Times*, March 17, 1970**

***Life* magazine estimates that the average college student sees 20 movies to every book he reads.**

***in I Seem To Be A Verb*, 1970**

The mass media will be the main channel of educating people outside of school and college structures. . . . My opinion and that of others in the news business is that any sizable newspaper or major broadcasting station needs a full-time environmental specialist today . . .

GLADWIN HILL
***New York Times* Correspondent**
at U.S. Congress Hearings on
Environmental Education, May 2, 1970

We are concerned primarily with the need for greater public awareness and commitment to resolving the important issues concerned with the natural environment and with the man-made conditions which jeopardize it.

a resolution passed by the National Association of Educational Broadcasters, 1969

80. THAT all media in Michigan develop a program to increase environmental education programming through the use of public service announcements and advertisements. (TARGET: All Mass Media)

Constraints

There is general lack of public understanding of the problems involved in public communication. Much of the public will "buy" only sensational approaches to the presentation of events, or attend only to entertainment or other diversionary forms of media content. Unfortunately, most environmental issues are multi-valued and extremely complex. Often the major constraint on adequate media coverage is hinged upon limitations of time and money.

Among reporters, writers, editors, and media owners and advisory bodies, there is insufficient environmental understanding. To cover some environmental events fully, reporters need understanding not only of the basic principles of the biological and physical sciences, but also of economics, sociology, resource planning, law, and humanities as they relate to environmental problems.

There also exists a tendency of environmental interest groups (business and industry, university professors, government agencies, etc.) to use scientific language. This creates barriers to communication among interest groups and the media and the general public. Some agencies and other groups often use emotional appeals alone to motivate citizen involvement.

Many individuals and organizations do not know how to approach or use the media effectively to maximize public communication. Few people realize the influence of mass communication on public perceptions, beliefs, attitudes, and values.

Strategies

To ensure implementation of the recommendations for mass communication and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Conduct a series of meetings with media personnel to interpret this state Plan.

B. Assist in the development of a model curriculum in environmental communication on the university level. This should be in cooperation with several universities and with the professional associations of the media.

C. Compile and distribute key environmental education literature to environmentally interested people in the media and in schools of journalism and communication within universities.

D. Develop guidelines for helping environmental educators who wish to use the mass media to accomplish environmental education goals.

E. Identify additional recommendations, constraints, and strategies for this component.

Some recent research has evidenced that a large part of the
learning experience now occurs before the child goes to school.
So the pre-school experience is tremendously important in determining
the youngster's future capability, and since the pre-school child,
regardless of his economic background, is now watching television
30 to 50 hours a week, that becomes his window on the world,
that becomes his exposure to the environment.

JOHN W. MACY, JR.
President, Corporation for Public Broadcasting
at U.S. Congress Hearings on Environmental Education, April 15, 1970

Professional and Trade Associations

The professional and trade association component includes groups with restricted membership due to employment, special service interests, special expertise, geographic location, and the like. These are essentially organizations serving the interests and needs of individuals arising from professional, occupational, or vocational activity. The Governor's Task Force RECOMMENDS TO PROFESSIONAL AND TRADE ASSOCIATIONS OF MICHIGAN:

81. THAT each professional or trade association establish a Committee on Environmental Education or appoint an individual to coordinate environmental education efforts. This Committee or individual should be the official liaison to the proposed State Environmental Education Council (see Recommendation 2) and should transmit environmental education information to professional and trade associations. (TARGET: All Professional and Trade Associations)

82. THAT each professional or trade association evaluate its efforts in environmental education and information to determine consistency with the concepts, principles, and spirit of the state Plan. (TARGET: All Professional and Trade Associations)

83. THAT each professional or trade association: (TARGET: All Professional and Trade Associations and Mass Media)
    A. Appoint an individual or team to evaluate its own use of environmental resources and supplies.
    B. Convert those uses, where necessary, into environmentally sound practices.
    C. Publicize those efforts.
    D. Report its environmental education programs and needs to the proposed State Environmental Education Council (see Recommendation 2) before 1976, through this component's representative on the Citizens Advisory Board (see Recommendation 3).

just what the doctor ordered

84. THAT each professional or trade association develop environmental education suggestions, materials, etc., consonant with the goals of the association. (TARGET: All Professional and Trade Associations)

85. THAT, when not in conflict with the policies of the association, professional or trade associations take a clear position on environmental education issues and exercise needed influence to assure sound environmental education legislation. (TARGET: All Professional and Trade Associations)

86. THAT each professional or trade association identify funding sources to aid it in the promotion of environmental education. (TARGET: All Professional and Trade Associations)

Constraints

Although many professional groups are involved in community affairs, they often avoid becoming entangled in controversial proposals. Such associations are frequently single-purposed and not action-oriented, which may be desirable according to the goals of the organization, but which may produce obstacles to environmental problem-solving.

Some associations are restricted by law from becoming involved in some controversies. As an additional problem, many small but potentially influential associations lack a full-time permanent staff and therefore cannot be as effective as they desire in some areas. Budget restrictions and association priorities further deter the influence of these groups.

Strategies

To ensure implementation of the recommendations for professional and trade associations and to help overcome the constraints, the Governor's Task Force recommends that appropriate groups (see Overall Strategy D, p. 42):

A. Identify professional and trade associations within the state that can contribute to environmental education goals and subgoals by implementing, at least in part, the recommendations for this component. A directory of these associations should be widely distributed to the appropriate groups.

B. Conduct workshops and conferences for the purpose of transmitting to professional and trade association members their role in implementing the state Plan.

C. Publicize the state Plan and the recommendations for this component group through existing publications and channels of professional and trade associations.

D. Investigate and report ways in which the implementation of the professional and trade association environmental education recommendations can be funded and carried out.

E. Identify additional recommendations, constraints, and strategies for this component.

In the engineers' opinion, however, successful efforts to conserve our natural resources and more effectively manage the environment will depend in large measure upon the ability of the people to understand, and to cope with, the related complex technical and social problems, as well as to develop and implement programs for the distribution of information on a broad scale. In short, America (in fact, the world) needs to maintain and expand its current "environmental consciousness" through broad educational programs in the schools, and more generally, through an adult education program for the public as a whole.

WILLIAM SOWERS
President-Elect, Consulting Engineers Council of the U.S.
at U.S. Congress Hearings on Environmental Education, April 7, 1970

Religious Organizations

The religious organization component denotes all groups directly or indirectly associated with, or sponsored by, religious institutions. This component refers not only to clergy with such affiliations, but also to their paid or volunteer lay employees or other workers. A member of any church or other religious organization may be identified with this component. The Governor's Task Force RECOMMENDS TO RELIGIOUS ORGANIZATIONS OF MICHIGAN:

87. THAT the various religious organizations within Michigan establish an inter-denominational Environmental Education Commission for Religious Organizations for purposes of: (TARGET: All Religious Organizations)

    A. Establishing liaison committees to cooperate actively with those Michigan religious committees that are already operating in local, state, regional, national, or international education programs.

    B. Evaluating and reporting the environmental implications of selected religious teachings.

    C. Developing a set of guidelines for environmental religious education.

    D. Writing a report, before 1977, for the citizens of Michigan on the role of religious organizations in environmental education, and transmitting this report to the State Council (see Recommendation 2) through the religious organizations representative on the proposed Citizens Advisory Board (see Recommendation 3).

    E. Encouraging the implementation of the state Plan within religious organizations.

    F. Serving as a clearinghouse for information on environmental religious education.

    G. Preparing a list of religious leaders who are committed to environmental educa-

tion, and distributing such a list to other groups. This information will assist the other components in including members of the clergy in their own environmental education planning groups.

H. Evaluating religious efforts in environmental education for their consistency with the concepts, principles, and spirit of the state Plan.

I. Creating a means to distribute environmental education information to religious groups.

J. Collecting and communicating widely to religious organizations research findings pertaining to strategies of environmental attitude change appropriate for religious organizations.

88. THAT religious groups direct existing community service projects toward increasing the individual's awareness of and concern for the total human environment. Opportunities for youth and senior citizen participation are especially important. (TARGET: All Religious Organizations)

89. THAT religious groups affiliate with established environmentally oriented organizations operating in the local, state, national, and international sectors. (TARGET: All Religious Organizations)

90. THAT religious groups sponsor radio messages, television programs, etc., designed to create environmentally sound religious values. (TARGET: All Religious Organizations)

91. THAT religious groups issue a comprehensive position statement: (TARGET: All Religious Organizations)

A. Indicating the need for a sound environmental ethic based on scriptural and theological foundations as well as strong environmental research.

B. Espousing an environmental ethic which is consonant with research findings in the social and biophysical sciences.

92. THAT religious groups seek funding for environmental education activities. (TARGET: All Religious Organizations)

93. THAT religious groups appoint and sponsor official representatives to local, state, regional, national, and international conferences and commissions on enviromental education. (TARGET: All Religious Organizations)

94. THAT religious groups develop and distribute program activities designed to assist church members in recognizing and clarifying their environmental values. (TARGET: All Religious Organizations)

95. THAT organized religious groups overtly demonstrate leadership in compliance with environmental principles and goals on the local, state, regional, national, and international levels. (TARGET: All Religious Organizations)

96. THAT religious organizations broaden the scope of religious education materials and staff expertise to include environmental content. (TARGET: All Religious Organizations)

Constraints

Although the teachings of most religions convey important environmental concepts, beliefs, attitudes and values, religious organizations have not shown strong leadership in environmental education. There may be some inconsistencies between certain religious teachings and environmentally sound life-styles. Some religious organizations analyze how the activities of the world fit into their belief systems rather than analyzing whether or not the church harmonizes with the social and biophysical systems of the world.

There is also a lack of visibility and involvement of many religious leaders in civic and political activities directed at environmental concerns; there is a lack of involvement in church-community projects on the part of many church

members and, often, an absence of an individual sense of responsibility in environmental matters.

Many religious organizations fail to realize that, since the environment affects the physical well-being of everyone, and since religious organizations are interested in the total well-being of people, religious organizations would seem to have a major responsibility and interest in environmental matters.

Strategies

To ensure implementation of the recommendations for religious organizations and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Develop a list of all religious organizations within the state and communicate to them the contents of the state Plan.

B. Prepare a list of environmental education references and resource materials which are appropriate for use by religious organizations.

C. Investigate and report on various sources of funding for environmental education programs for religious organizations.

D. Appoint a temporary committee of environmentally oriented clergy and other appropriate individuals to meet with religious leaders of the state to alert them to environmental problems and ask for an environmental education commitment in helping to solve these problems.

E. Write environmental education and information articles and submit these for publication in religious magazines, newspapers, and newsletters throughout the state.

F. In cooperation with the clergy, sponsor regional and statewide public workshops to interpret the state Plan and its implications for religious environmental education.

G. Identify state leaders in religious education and formally request their assistance in achieving the objectives of the state Plan.

H. Identify additional recommendations, constraints, and strategies for this component.

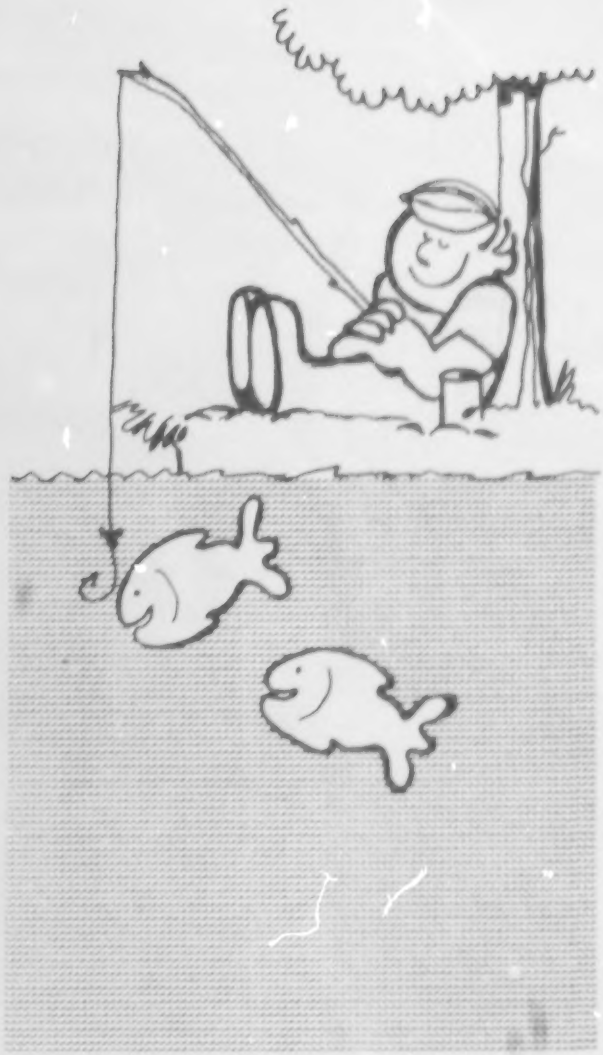
Time, is a threefold present: the present as we experience it, the past as present memory, and the future as a present expectation. By this criterion, the world of the year 2000 has already arrived, for it is within the decisions we make now and the way we design our environment and thus sketch the lines of constraints that the future is committed.

ST. AUGUSTINE

And I spoke yesterday afternoon to the professor of semitic studies at the Oriental Institute. In the Semitic language what does the verb "to have dominion" mean? And he said "to have dominion" means exactly the opposite of what it has been thought to mean when one translates from Hebrew into Latin, which was one of the earlier translations of the Bible. The term is understood as "domination," a kind of political word meaning "to exercise control over," but the proper translation would be "to exercise tender care for." And this is almost a 180-degree shift in the meaning.

Understanding Genesis in its context, man was ordered so as to live with God's other creation, the earth, that he was to regard her as the object of his guardianship. In fact, the word is used in the sense that man is to care for, he is to have dominion in the sense of exercising his intelligence to see that her integrity is not abused.

DR. JOSEPH SITTLER
Professor of Theology, Divinity School, University of Chicago
at U.S. Congress Hearings on Environmental Education, March 24, 1970



Youth Organizations

The youth organization component includes all clubs or organized groups of children and young adults through high school age. This would include conservation, environmental and ecology clubs, 4-H, scouts, teen service clubs, etc. The Governor's Task Force RECOMMENDS TO YOUTH ORGANIZATIONS OF MICHIGAN:

97. THAT a Youth Organizations Committee on Environmental Education be established for purposes of: (TARGET: All Youth Organizations)

    A. Providing a strategy to assist youth organizations in implementing the environmental education goals and recommendations of the state Plan.

    B. Identifying key environmental education expertise in youth organizations and distributing the list widely.

    C. Conducting a series of conferences and workshops for youth leaders with the purpose of communicating the possibilities, scope, and implications of environmental education for youth.

    D. Identifying and distributing descriptive material of model environmental education programs for youth.

    E. Identifying and publicizing sources of funding for youth programs in environmental education.

    F. Preparing a report, before 1977, on the role, status, trends, and needed actions of youth organizations as related to environmental education, and transmitting this report to the State Environmental Education Council (see Recommendation 2) through the youth organizations representative on the Citizens Advisory Board (see Recommendation 3).

98. THAT each youth organization appoint an individual to be responsible for integrating environmental education into its programs. (TARGET: All Youth Organizations)

99. THAT each youth organization establish programs to help each person: (TARGET: All Youth Organizations)
    A. Develop an environmental sensitivity to his own community environment.
    B. Recognize, analyze, and clarify his personal values concerning the environment.
    C. Develop attitudes and life-styles that will enable him to live with and within his environment.
    D. Develop a personal responsibility for environmental protection and enhancement.
    E. Become personally motivated to work toward the prevention and solution of environmental problems.
    F. Develop action projects to solve environmental problems.
100. THAT each state committee, board, council, commission, etc., pertaining to youth and the environment ensure participation by youth in the decision-making process. (TARGET: All Components)
101. THAT youth organizations develop instructional materials and implement programs that focus on the participants' local environment as well as the larger environment in which they interact. (TARGET: All Youth Organizations)
102. THAT each youth organization sponsor workshops to develop youth leadership in the area of environmental education. (TARGET: All Youth Organizations)

Constraints

A major obstacle in the path of youth organization goals is that many youth leaders are volunteers, untrained in environmental education. Turn-over is high. Also, time and money are generally limited.

Strategies

To ensure implementation of the recommendations for youth organizations and to help overcome the constraints, the Governor's Task Force suggests that appropriate groups (see Overall Strategy D, p. 42):

A. Communicate the intentions of the state Plan to all youth organization leaders in the state.
B. Publicize the contents of the state Plan through the use of existing youth organization media.
C. Request the assistance of professional associations dealing with youth in the implementation of recommendations for youth environmental education programs.
D. Consult with youth on all phases of carrying out the youth organization recommendations and strategies of the state Plan.
E. Identify additional recommendations, constraints, and strategies for this component.

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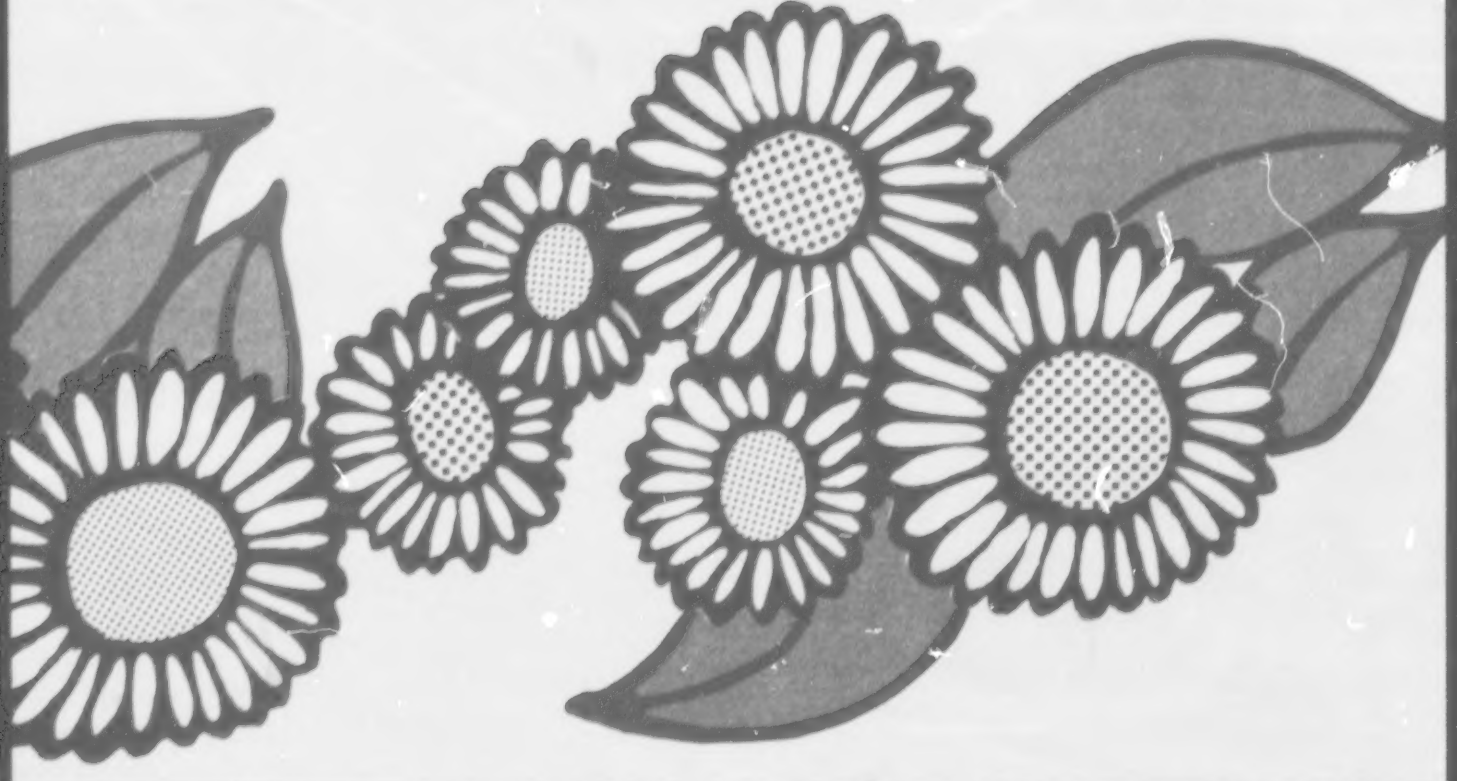
14 standard jet bombers at a cost of $8,000,000 each would
pay for a school lunch program of $110,000,000
and serving 14 million children . . .
in World Facts and Trends, 1972

6



DISTRIBUTION AND EVALUATION

Distribution of Recommendations

Recommendations must be directed to individuals having authority to implement them. The Governor's Task Force recognizes its responsibility to identify **specific persons,** rather than just groups, to whom each recommendation should be sent, but such specification is beyond the space limitations of this report. Therefore, only target groups for which recommendations are intended have been listed with each recommendation. As part of their charge, **the Task Force will also channel each strategy mentioned in this Plan to a person or group who can potentially carry it out** (see Overall Strategy D, p. 42).

Evaluation of Effectiveness

There are three major aspects to evaluating the effectiveness of this Plan. The **first** aspect determines to what extent the recommendations of this Plan are adopted. The **second** aspect determines whether or not citizens of Michigan are affected by environmental education—that is, whether or not they actually have changed their life-styles to become environmentally sound because of a program. The **third** aspect ensures that the process of planning for environmental education is continuous and does not end with this report. This aspect also ensures that implementation provides for continued citizen involvement. **On-going planning processes must include mechanisms for constant citizen input and evaluation.** Each aspect of evaluation is further discussed below, and technical definitions of important words are given in the Glossary to help researchers.

Adoption of the State Plan

The long-range effectiveness of planning efforts is severely limited unless members of target groups actually put into practice the actions recommended. **It is not enough merely to read the recommendations; they must be studied, evaluated, and acted upon in such a way that they are fully integrated into daily activities.** They must be fully adopted or other alternatives leading toward the same ends must be fully adopted before the Plan can be judged successful.

One purpose of planning is to devise a route, or alternative routes, leading to clear changes. Evaluation of the **communication phase of planning** should therefore focus not on the number of copies of the final report distributed to the general public, but rather on the number of individuals or groups who take action as a consequence of having been exposed to the Plan.

Researchers are available to study and determine the effect the Plan has over a period of time. Full adoption of the Plan—or adoption of activities consistent with the purposes of the plan—usually involves a step by step process. Researches have divided this process into phases in which target groups:[6]

[6] See Everett M. Rogers and F. Floyd Shoemaker, Communication of Innovations, 2d ed. (New York: Free Press, 1971), p. 103.

(1) become **aware** of the Plan, and gain some **understanding** of its goals and functions,

(2) form favorable **attitudes** toward the plan,

(3) participate in **actions** that provide a choice to adopt the recommendations of the Plan, or other alternative recommendations which lead to the same goals, and

(4) seek **support** and **reinforcement** for their choices.

To ensure full adoption that lasts over time, curricular or communications designers must plan for each phase of the adoption process.

Researchers who evaluate the effectiveness of the Plan must also consider each phase. This often takes many years. Some individuals or groups adopt new ideas almost immediately; most people, however, need a longer period of time (say, 1-3 years); and still others need considerably longer (possibly 5-10 years). Within the total population, adoption of new ideas is usually slow at first, then accelerates, and finally begins to taper off.

Evaluation of Program Effectiveness

It is useful for leaders from each component to step back and discover occasionally the extent to which environmental communication, education, and information programs are effective. It is the responsibility of each component group to know whether or not monies are well spent. Each group must be accountable to its donors and supporters, and to itself for program effectiveness or lack of effectiveness. Evaluative reports should attempt to describe the environmental literacy levels (ends) of groups of citizens rather than just report the activities (means) of an organization or agency.

The Michigan Department of Education has designed a systematic way of evaluating effectiveness and improving a program. This accountability system may be applied to almost any educational program, whether in business and industry, higher education, youth groups, or other components. The system has been divided in six broad areas:

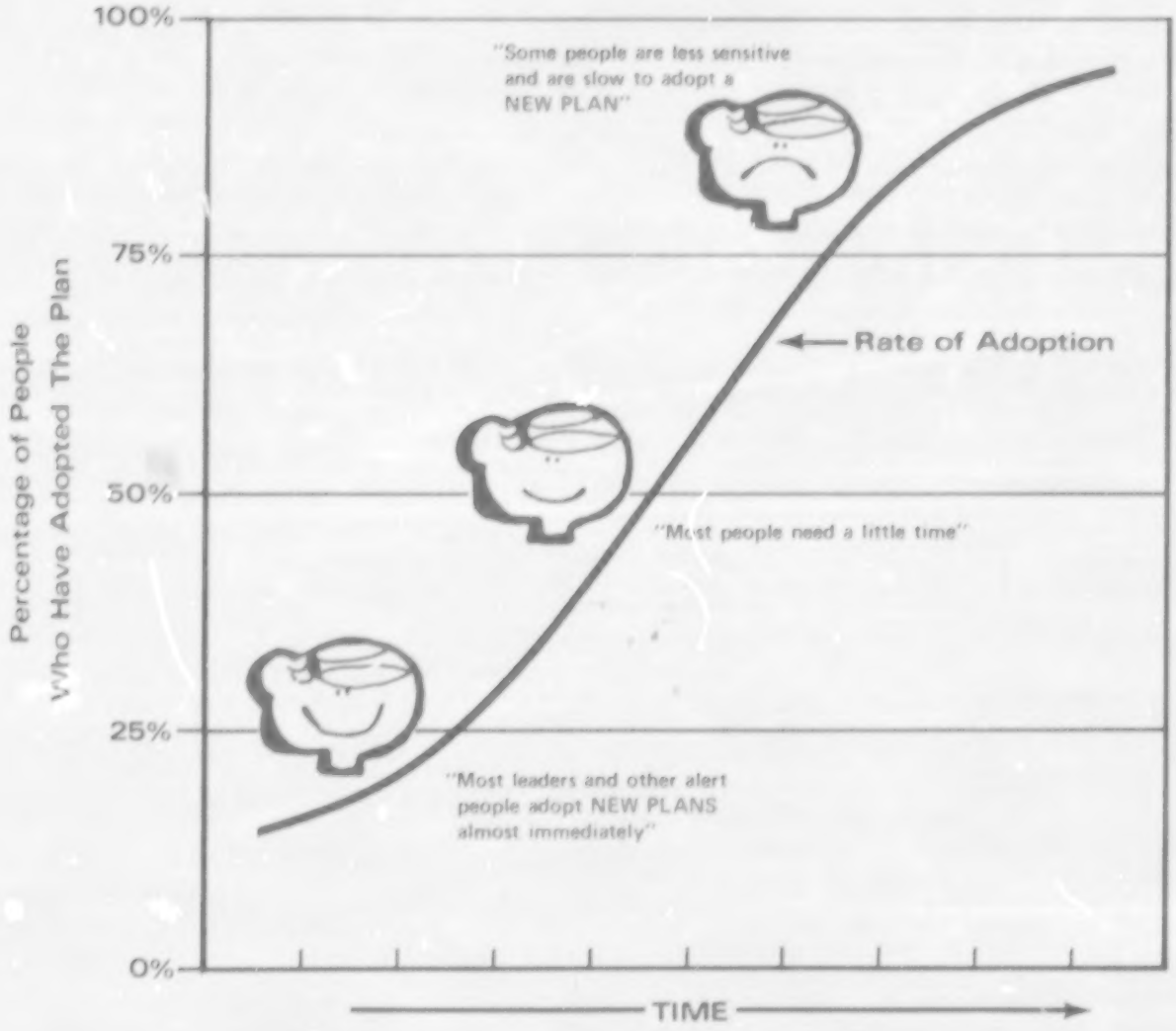
1. GOALS: This includes the identification, discussion and dissemination of common environmental communication, education, and information goals. These goals have been identified in Chapter IV of this report.

2. PERFORMANCE OBJECTIVES:[7] These are, by consensus of the component group or by definition, the things people are supposed to do voluntarily as a result of being

[7] If the term "performance objective" is unfamiliar, then the following references may be useful: agency administrators, etc., see Edward Suchman's **Evaluative Research: Principles and Practice in Public Service and Social Action Programs** (New York: Russell Sage Foundation, 1967); classroom teachers, youth leaders, school principals, general public, etc., see Robert Mager's **Goal Analysis** (Belmont, California: Fearon Publishers, 1972), or **Developing Performance Objectives** (Lansing, Michigan: Department of Education, n.d.); higher education, educational media designers, etc., see Miriam Kapfer's **Behavioral Objectives in Curriculum Development: Selected Readings and Bibliography** (Englewood Cliffs, New Jersey: Educational Technology Publications, 1971). Also see the Glossary.

It is not only what we do,
but also what we do not do,
for which we are accountable.
MOLIERE

"ADOPTION OF THE PLAN'S RECOMMENDATIONS TAKES MORE TIME FOR SOME PEOPLE THAN OTHERS"


100%
75%
50%
25%
0%
Percentage of People Who Have Adopted The Plan
"Some people are less sensitive and are slow to adopt a NEW PLAN"
Rate of Adoption
"Most people need a little time"
"Most leaders and other alert people adopt NEW PLANS almost immediately"
TIME

exposed to a program. These objectives should be consistent with the general goals of environmental education.

3. NEEDS ASSESSMENT: After identifying the general goals for environmental communication, education, and information and identifying performance objectives appropriate for each component group, unmet needs should be assessed.

4. DELIVERY SYSTEM: Based on a needs assessment, plans are made to invent new programs or to change current ones to achieve performance objectives.

5. TESTING AND EVALUATION: To determine if a new or revised program does what it is supposed to do, reliable and valid information must be gathered. Formal research methods must be applied, and the results should be communicated to help allocate future expenditures.

6. RECOMMENDATIONS: Based on the above steps, new policies and programs are initiated, current ones maintained, and ineffective programs phased out. The entire process then begins once again by redefining or confirming the general goals and recycling the appropriate steps of the accountability process.

Without an evaluative system, program directors cannot tell whether or not program activities are aimed at the intended goals and objectives. Without a feedback system, well intended funds may actually be contributing to counter-productive activities.

Evaluation as an On-Going Process

The third and final aspect of evaluation ensures that the written state Plan is periodically updated and that programs initiated by the Plan remain in the public's eye. **Continuous public review is essential to effective planning and implementation efforts.** Continuous review has been formally provided for through the recommended

BUILDING ACCOUNTABILITY INTO THE ENVIRONMENTAL EDUCATION SYSTEM

I Common Goals

II Performance Objectives

III Needs Assessment

IV Delivery Systems Analysis

V Evaluation & Testing

VI Recommendations for Improvements

Citizens Advisory Board on Environmental Education (see Recommendation 3), which continually advises the proposed State Environmental Education Council (see Recommendation 2).

Also, as indicated throughout this report, formal systems should be designed within each component to encourage citizen participation. It is, however, advantageous to conduct a large-scale and comprehensive evaluation to ensure that the proper alternatives have been selected and that scarce resources are being allocated to the most pressing needs. A formal evaluation procedure can help ensure equitable distribution of environmental education resources across the state, and from group to group.

Since careful review depends upon adequate information, the needed research takes preparation, trained researchers, and substantial financial support. For a formal short-range review (as is proposed), a five-year period is usually necessary. Such a five-year feedback and evaluation cycle may be outlined as shown below.

The purpose of this research design is to ensure feedback on the adoption of the Plan, so that all citizens can judge how efficiently and equitably the goals and objectives are being reached in order to justify continuing expenditures.

A formal feedback and evaluation process should be integrated into each component group and into each phase of the state planning process to ensure accountability for all efforts supported by the citizens of Michigan and to improve our decision-making capability.

What we do today will determine, to a major extent, how we will live tomorrow. Michigan's environmental future is in our hands.

FIVE-YEAR CYCLE

PART I (FY 1973-74): **Implementation** of the goals, objectives and recommendations of the state Plan.

PART II (FY 1974-75): Based on the goals, objectives and recommendations, write and submit **funding proposals** for formal research support.

PART III (FY 1975-76): **Gather baseline data** (social indicators) for future comparative research studies to be executed in the next five-year cycle (1978-1983).

PART IV (FY 1976-77): Write and distribute the research **results** and related **recommendations.**

PART V (FY 1977-78): Publicly review the recommendations presented and **rewrite the state Plan,** if necessary, to accommodate changing needs and new information. A series of regional and statewide meetings should be held. Publish and distribute a Second Edition of the state Plan.

The concept of a learning force extends far beyond those enrolled in Core educational activities. Data concerning educational activities in the Periphery are needed for both planning and evaluation.

from *Social Reporting in Michigan: Problems and Issues*
State of Michigan, 1970

. . . everyone can participate in government if that government is organized to encourage participation.

ARTHUR PEARL and STEPHANIE PEARL
"Toward An Ecological Theory of Value"
Social Policy, May/June 1971

Make no little plans; they have no magic to stir men's blood and probably will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency.

DANIEL H. BURNHAM, 1907

GLOSSARY[8]

ACCOUNTABILITY—the notion of having to report, explain, or justify in a valid and reliable manner that expended resources produce the intended results.

ADOPTION—a decision to make full use of a new idea as the best course of action available; the opposite of rejection.

APPRECIATION—an emotionally fringed awareness of the worth, value, or significance of anything.

ATTITUDE—the degree of positive or negative affect associated with some thing, person or situation; an enduring learned readiness or predisposition to act toward or against some thing, person, or situation; there are three components to an attitude—knowledge, feeling, and the action tendency.

AWARENESS—consciousness of a situation or object, without direct attention to it or definite knowledge of its nature.

BELIEF—an inference made by an observer about an underlying state of expectancy, which may or may not be consistent with the observer's verbal reports.

COMMITMENT—an overt (written, spoken, demonstrated, etc.) indication or affirmation to others publicly that one has the interest, the feeling of a need, and the willingness to act out a specific function relative to some problem.

COMMUNICATION—the process of transmitting a message from a source to an audience via a channel.

COMPONENT—a segment or group of a population that shares certain characteristics; the grouping is attained by specifying criteria and is done for a specified purpose.

CONCERN (environmental)—any dissatisfying perception of, and/or feeling toward, the environment held by an individual, group, organization, society, or culture which frequently motivates them to address that dissatisfaction with some form of action.

CONSERVATION EDUCATION—the educational process of communicating an understanding of the characteristics, distribution, status, uses, problems, and management policies of our basic natural resources. The emphasis has been on "stewardship" and the "wise-use" concept in relation to basic natural resources.

CONSTRAINT—a problem or obstacle that prevents a recommendation or an objective from being carried out. A constraint is usually a limitation of resources, time, money, competencies of people, populations, or other systems which must be interfaced.

CULTURE—the collection and interaction among a common set of social, political, economic, scientific, technological, philosophical, and educational systems or organizations; a given people's way of life, as distinct from the life-ways of other peoples.

ECOLOGY—the study of the interrelationships between organisms or groups of organisms and their biological, chemical, and physical surroundings.

ECOSYSTEM—any spatial unit that includes all of the organisms in a given area interacting with the physical environment so that a flow of energy leads to clearly defined trophic structure, biotic diversity, and material cycles within the system.

EDUCATION—the aggregate of all the processes by means of which a person develops abilities, attitudes, and other forms of behavior of positive value in the society in which he lives; the term is not restricted to formal schooling.

ENVIRONMENTAL EDUCATION—the basic process leading toward the development of a citizenry that is aware of and concerned about the environment and its associated problems, and that has the knowledge, skill, motivation, and commitment to work toward solutions to current and projected problems.

ENVIRONMENT, BIOPHYSICAL—the synergistic sum of the biological (living), chemical, and physical (non-living) influences upon an organism (plant or animal).

ENVIRONMENT, TOTAL—the synergistic sum of all influences upon an organism (plant or animal). For man, this includes all biological, chemical, physical, social, psychological, economic, philosophical, esthetic, and unknown surroundings.

ENVIRONMENTAL ETHIC—a human value system based on biophysical facts; the test of the value system is the survival of the human ecosystem.

ENVIRONMENTAL PROBLEM—a perceived dissatisfaction with a condition or state of any or all parts of the total human environment.

ENVIRONMENTAL SOLUTION—a perceived satisfaction with the consequences of a completed course of action which has led to a certain state or condition of any or all parts of the total human environment. What is called a "solution" may vary from the real to the imaginary, from the immediate to the long-term, from local to global, or from person to person. Environmental problem-solving should ideally aim toward solutions which are scientifically real, long-term, global, and satisfying to a maximum number of people affected by the problem.

[8] These definitions are given for technical clarification. They have been adopted or modified from many sources, which are available upon request.

ENVIRONMENTAL QUALITY—the state or condition of overall health of the total environment—biophysically, culturally, and psychologically.

ENVIRONMENTALLY LITERATE CITIZEN—a person who is knowledgeable about the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work toward their solution.

ENVIRONMENTALLY SOUND—consistent with biophysical facts, principles, and laws.

GOAL—a direction toward some abstract end which is used to guide program design, implementation, and evaluation. A goal is derived directly from what one believes. It is broad, all-encompassing, and usually not as specific as an objective. A goal is difficult to measure directly; its attainment is usually inferred from the attainment of a number of subordinate, specific objectives.

GUIDELINES—a set of guiding principles designed to give direction to the activities of, or approaches to, a specified program. Guidelines usually contain the word "should."

INFORMATION—facts told, read, or communicated which may be unorganized and even unrelated.

K-12—kindergarten through the twelfth grade in school.

KNOWLEDGE—an organized body of information, or the comprehension and understanding consequent on having acquired and organized a body of facts.

LAW (or NATURE) of BIOLOGY and PHYSICS—a statement of the relation among phenomena (biological, chemical, and physical) which is invariable under given conditions, as known at present.

LIFE-STYLE—a mode or manner of existence; the personal, group, or cultural behavioral events or patterns that interface with the surroundings or total environment.

MOTIVATION—a general term referring to energizing states of the human organism which direct it toward goals.

NATURE STUDY—an area of study aimed at developing an understanding of and respect for the natural parts of our environment and cultivating in man the skills of accurate observation.

OBJECTIVE—a specific and measurable statement of an end in view; an objective is derived from general goals or subgoals and is guided by them; an objective is written with an action verb which denotes a measurable process. If an objective is rewritten in such a form that it becomes an urged and advised course of action, then it becomes a "recommendation."

OPINION—a verbal expression of some belief, attitude, or value.

OPINION LEADER—an individual able to influence informally other individuals' attitudes or even behavior in a desired way with relative frequency.

OUTDOOR EDUCATION—a method of education which uses resources outside the formal classroom. It is used to teach what can be more effectively learned outside, and to enrich, vitalize and complement areas of the school curricula through the use of outdoor environments.

PERCEPTION—the process by which we obtain a notion of how the world is at any particular moment. Perceptions are directives for action in that they define for the beholder what constitutes appropriate behavior at a moment of acting. Perceptions are constructed not only from external environmental stimuli, but also from internal states, habits, or drives.

PERFORMANCE OBJECTIVE—a statement which describes the individual or individuals who will be behaving, the behavior to be exhibited, the object or objects of the behavior, the time reference, the technique to be used for measuring the behavior, and the criterion for success.

PLANNING—a systematic and rational method of solving problems, which usually includes identifying the problem, studying and analyzing it, bringing together the relevant interests in the community, designing a plan of action, implementing the plan, and monitoring and evaluating the results.

POLLUTION—the presence of one or more contaminants or combinations thereof in such quantities and of such duration as may be, or may tend to be, injurious to plant or animal (including human) life, to property, or which unreasonably interferes with the comfortable enjoyment of life, or property, or the conduct of business.

POPULATION EDUCATION—educational programs aimed at all citizens that will foster an understanding and action-guiding perception of the causes and consequences of human population characteristics and changes.

PROBLEM-SOLVING APPROACH (problem method, problem-solving method)—a method of instruction by which learning is stimulated by the creation of challenging situations that demand solution; a specific procedure by which a major problem is solved through the combined solutions of a number of smaller related problems.

PROCESS—the on-going dynamic state of a series of systematic steps by which a goal is attained; the continuous state of some entity that does whatever is appropriate to achieve the goals of a system.

PROCESS-ORIENTED EDUCATION—an educational approach intended to motivate participants by involving them directly in the design of and responsibility for their own learning experiences. The goal of such an approach is to develop inquiry and problem-solving skills and the ability to think critically.

PROGRAM—an aggregate of specific activities that lead to a set of clearly definable products or ends.

RECOMMENDATION—an idea on what to do to achieve goals. A recommendation is specific and measurable. If an "objective" is rewritten in such a form that it becomes an urged and advised course of action, then the objective becomes a recommendation.

RESOURCE-USE EDUCATION—the process of learning how man draws on his biophysical and social environments to meet his life needs.

RURAL—populations that live in towns of less than 2,500 people, or in the outlying areas of such towns, and that are not directly adjacent to an urban or suburban area.

SCIENCE EDUCATION—any series of related activities that develop an understanding of the conceptual structure and processes of science, that contribute to the student's ability to interpret scientific information, and that enable him to understand the role of science and its applications and limitations within society.

SKILL—a mental or physical ability to do something with ease and precision in a variety of similar situations.

STRATEGY—a definite, immediate, specific, and concrete way to overcome a constraint, put a recommendation into practice, or achieve an objective. A strategy is often a sequential series of statements of desired happenings.

SUBURBAN—an area spreading out from the city proper; the area contributes to city-center urban populations and problems, and vice-versa.

TARGET—the individual or group(s) at which a communication is directed.

UNDERSTAND—to be thoroughly familiar with the ideas, concepts, and principles associated with a notion, and to be able to apply these ideas, concepts, and principles in a variety of similar situations.

URBAN—a Standard Metropolitan Statistical Area containing a central city of 50,000 population or more.

VALUE—an abstract ideal, positive or negative, not tied to any specific attitude object or situation, representing a person's beliefs about ideal modes of conduct and ideal terminal goals.

Think of the environment of the State of Michigan as a huge classroom, and think of every citizen and organization as learners engaged in critical thinking about what has to happen if we are going to solve our environmental problems. What we are into here is a state-wide Environmental Encounter. It is much broader in scope and has a longer time-span than the Encounter projects that individual teachers and students can design within schools, but that is the only difference. Educational mini-encounters conducted in conjunction with classwork develop youngsters so that they are prepared for real maxi-encounters of the kind now facing all Michigan citizens. Once enough educators, citizens, legislators, and agency officials make this connection between educational, environmental, and governmental issues, we can solve the problems that are now lowering the quality of our environment. I think it can be done.

DR. WILLIAM B. STAPP
in "A Plan for The State of Michigan"
***Research News*, July 1972**

The future will be shaped by the response of the reader. How will you respond?

Information Technology, 1972